

REPORT ON STEAM TURBINE MACHINERY

Received at London Office 10 OCT 1922

Date of writing Report 6th October 1922 When handed in at Local Office 10th October 1922 Port of Manchester.

No. in Survey held at Manchester Date, First Survey 5th January Last Survey 7th September 1922

Reg. Book. on the Turbines Nos 1972 and 1973 and Double Reduction Gearing No. 1975 for S.S. British Commodore No. 283 (Number of Visits 24) Gross Tons } Net

Built at Dundee By whom built Caledon Ship Co. Ltd. Yard No. _____ When built _____

Engines made at Manchester By whom made Metropolitan-Vickers Elec. Co. Ltd. Engine No. 1972 When made 1922

Boilers made at _____ By whom made _____ Boiler No. 1975 When made _____

Shaft Horse Power at Full Power 3200 Owners _____ Port belonging to _____

Nom. Horse Power as per Rule _____ Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

STEAM TURBINE ENGINES, &c.—Description of Engines Rateau Impulse H.P. and L.P. No. of Turbines Two Ahead Two Astern Two

Direct coupled, single or double reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing 2, direct coupled to phase periods per second, Alternating Current Generator rated Kilowatts Volts at revolutions per minute; for supplying power for driving Propelling Motors. Propelling Motors, Type rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

PARTICULARS OF TURBINE BLADING.

H.P. Astern

	H.P.			L.P.			H.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	1/2"	3'-2 1/2"	2	1 1/16"	3'-3 5/16"	1	1"	3'-2 3/4"	2 on	2 1/2"	3'-0 1/2"	1
2ND	1/16"	3'-2 1/16"	1	1 13/16"	3'-3 13/16"	1	2 1/8"	3'-3 7/8"	as shud	6 3/16"	3'-4 3/16"	1
3RD	7/8"	3'-2 7/8"	1	2 13/16"	3'-4 13/16"	1						
4TH	7/8"	3'-2 7/8"	1	4 3/16"	3'-6 3/16"	1						
5TH	1"	3'-3"	1	6 3/8"	3'-8 3/8"	1						
6TH				8 1/4"	3'-10 1/4"	1						
7TH				10 3/16"	4'-0 3/16"	1						
8TH												

Shaft Horse Power at each turbine 1600 Revolutions per minute, at full power, of each Turbine Shaft 3125 1st reduction wheel 492
 main shaft 73.3 Pitch Circle Diameter, 1st pinion 6.79411" 2nd pinion 11.6491" 1st reduction wheel 43.10012" main wheel 78.2677"
 Width of Face, 1st reduction wheel 20" main wheel 40" Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,
 1st pinion 0" and 1.7 1/4" 2nd pinion 0" and 2.9 1/2" 1st reduction wheel 1.9" main wheel 2.11 1/2" Flexible Pinion Shafts, diameter 1st 3 1/8" 2nd 5 3/4"
 Pinion Shafts, diameter at bearings External 1st 6" 2nd 10" diameter at bottom of teeth of pinion 1st 6.21751" 2nd 10.73736"
 Internal 1st 3 7/16" 2nd 6"
 Wheel Shafts, diameter at bearings, 1st 10" main 19" diameter at wheel shroud, 1st main
 Generator Shafts, diameter at bearings Propelling Motor Shafts, diameter at bearings

Main Shafting, diameter of Tunnel Shafting as per rule diameter of Thrust Shafting as per rule
 diameter of Screw Shaft as fitted Is the screw shaft fitted with a continuous liner the whole length of the stern tube _____ Is the after end of the liner

made watertight in the propeller boss _____ If the liner is in more than one length are the joints burned _____ 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 appliance fitted at the after end of the shaft to permit of it being efficiently lubricated _____

Length of Stern Bush _____ Diameter of Propeller _____ Pitch of Propeller _____ No. of Blades _____ State whether Moveable _____ Total Surface _____ square feet. If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine, and either the H.P. or I.P. Turbine can exhaust direct to the Condenser

No. of Turbines fitted with astern wheels 2 Total number of power driven Main and Auxiliary Pumps _____ No. and size of Feed Pumps _____ How driven _____ No. and size of Pumps connected to the Main Bilge Line _____

How driven _____ No. and size of Ballast Pumps _____ No. and size of Lubricating Oil Pumps, including Spare Pump _____ Are two independent means arranged for circulating water through the Oil Cooler _____ No. and size of suction connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room _____ and in Holds, &c. _____

No. and size of Main Water Circulating Pump Bilge Suctions _____ No. and size of Donkey Pump Direct Suctions to the Engine Room Bilges _____ 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 connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____ Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the Discharge Pipes 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 are carried through the bunkers _____ How are they protected _____ 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 Screw 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?

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

Main Boilers

Auxiliary Boilers

Donkey Boilers

Spare Gear. State the articles supplied:— Turbines: 2 sets of bearing bushes for rotor, 20 bolts (or studs) & nuts for casing joint, 1 set of coupling bolts, 1 set of Michell Thrust pads, 2 bolts & nuts (or studs) for each size fitted to rotor bearings for each bearing, 1 gland complete, Diaphragm gland rings, Gears, 1 primary pinion and flexible shaft, 1 set of bearing bushes main shaft, 2 ditto for 1st & 2nd Red. pinions, 1 d. for 1st Red. wheel shaft, 2 bolts (or studs) & nuts for each size for each bearing fitted, 1 set of coupling bolts, 20 gear case joint bolts (or studs) & nuts. General, 3 thermometers, 1 spring for each size fitted, 1 set of tubes for Oil Cooler.

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD

Manufacturer.

Brimpton, Aug. D.O.

Dates of Survey while building: During progress of work in shops - 1922, 5/1, 6/1, 11/2, 7/2, 10/2, 20/3, 6/3, 8/3, 13/4, 10/4, 15/6, 28/6, 6/7, 10/7, 11/7, 18/7, 27/7, 11/8, 16/8, 21/8, 30/8, 1/9, 4/9, 7/9. During erection on board vessel - Total No. of visits

Dates of Examination of principal parts: Casings 10/7/22, 18/7/22, Rotors 18/7/22, Blading 8-3-22, Gearing 6-7-22, 18-7-22, 21-8-22. Wheel shaft 10-2-22, Thrust shaft, Tunnel shafts, Screw shaft, Propeller. Stern tube, Engine and boiler seatings, Engines holding down bolts in shops. Completion of pumping arrangements, Boilers fixed, Engines tried under steam 1-9-22. Main boiler safety valves adjusted, Thickness of adjusting washers.

Material and tensile strength of Rotor shafts M.S. 32.7, 33.1 Tons/in². Identification Mark on Do. Material and tensile strength of Flexible Pinion Shaft Nickel Steel 58.8, 51.0, 54.8 High Speed Tons/in². Identification Mark on Do. Material and tensile strength of Pinion shaft Nickel Steel 45.1, 45.0, 48.2 High Speed Tons/in². Identification Mark on Do. Material and tensile strength of 1st Reduction Wheel Shaft M.S. 36.5, 38.4 Tons/in². Identification Mark on Do. Material of Wheel shaft M.S. Identification Mark on Do. Material of Thrust shaft Identification Mark on Do. Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do. Material of Steam Pipes 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 carrying and burning oil fuel been complied with? Is this machinery a duplicate of a previous case? Yes. If so, state name of vessel: Saledon 282.

General Remarks (State quality of workmanship, opinions as to class, &c.) These turbines and D.R. Gearing have been built under special survey and the materials tested in accordance with the Rules of this Society and the approved plans. The materials and workmanship so far as can be seen are sound and good. The steam trial and subsequent examination found satisfactory. This machinery is eligible in our opinion to be classed with + L.M.C.

Mark on Coupling of Main Shaft: - Lloyds No 13559 4-9-22

This Machinery has been fitted on board in a satisfactory manner.

The amount of Entry Fee ... £ : : When applied for, Special ... £ 30 : 4/1 : : When received, Donkey Boiler Fee ... £ : : PER SECRETARY'S ORDER Travelling Expenses (if any) £ : : 5th DEC. 1922

A. Campbell Alfred H. Lane Engineer Surveyors to Lloyd's Register of Shipping. J. T. Sellar

Committee's Minute TUE. 20 MAR. 1923 Assigned