

REPORT ON STEAM TURBINE MACHINERY

Received at London Office

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 No. 1972 and Double Reduction Gearing No. 1975 for S.S. British Commodore No. 283 (Number of Visits 24)
Gross Tons }
Net Tons }
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
Gear No. 1975
Boilers made at _____ By whom made _____ Boiler No. _____ 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 Ratan Impulse H.P. and L.P. No. of Turbines Ahead Two
Aster 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	$\frac{1}{2}$ " $\frac{1}{8}$ "	3'-2 $\frac{1}{2}$ " 3'-3 $\frac{3}{8}$ "	2	$\frac{1}{16}$ "	3'-3 $\frac{5}{16}$ "	1	1"	3'-2 $\frac{3}{4}$ "	2 on	2 $\frac{1}{2}$ "	3'-0 $\frac{1}{2}$ "	1
2ND	$\frac{1}{16}$ "	3'-2 $\frac{1}{16}$ "	1	$\frac{1}{16}$ "	3'-3 $\frac{1}{16}$ "	1	2 $\frac{1}{8}$ "	3'-3 $\frac{1}{8}$ "	as shd	6 $\frac{3}{16}$ "	3'-4 $\frac{3}{16}$ "	1
3RD	$\frac{7}{8}$ "	3'-2 $\frac{7}{8}$ "	1	2 $\frac{1}{16}$ "	3'-4 $\frac{1}{16}$ "	1						
4TH	$\frac{7}{8}$ "	3'-2 $\frac{7}{8}$ "	1	4 $\frac{3}{16}$ "	3'-6 $\frac{3}{16}$ "	1						
5TH	1"	3'-3"	1	6 $\frac{3}{8}$ "	3'-8 $\frac{3}{8}$ "	1						
6TH				8 $\frac{1}{4}$ "	3'-10 $\frac{1}{4}$ "	1						
7TH				10 $\frac{3}{16}$ "	4'-0 $\frac{3}{16}$ "	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 $\frac{1}{4}$ " 2nd pinion 0" and 2'9 $\frac{1}{2}$ " 1st reduction wheel 1'9" main wheel 2'-11 $\frac{1}{2}$ " Flexible Pinion Shafts, diameter 1st 3'8" 2nd 5'4"
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 $\frac{1}{16}$ " 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
as fitted as fitted
diameter of Screw Shaft as per rule Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner
as fitted

made watertight in the propeller boss Is the liner in more than one length are the joints burned Is 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 Is 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 L.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.

Brinsford, Aug. D.O.

Dates of Survey while building
During progress of work in shops -- 1922. 5. 6. 11. 7. 10. 20. 6. 8. 13. 10. 15. 28. 6. 10. 11. 18. 27. 11. 16. 21. 30. 1. 4. 7.
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 Tens/in² Identification Mark on Do.

Material and tensile strength of Flexible Pinion Shaft Nickel Steel 58.8, 51.0, 54.8 High Speed Tens/in² Identification Mark on Do.

Material and tensile strength of Pinion shaft Nickel Steel 45.1, 45.0, 48.2 High Speed Tens/in² Identification Mark on Do. ditto ditto

Material and tensile strength of 1st Reduction Wheel Shaft M.S. 36.5, 38.4 Tens/in² Identification Mark on Do.

Material of Wheel shaft M.S. Identification Mark on Do. Al 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
Al

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

The amount of Entry Fee ... £ : :
Special ... £ 30 : 4/-
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 19
When received, PER SECRETARY'S OR. 5 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



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Lloyd's Register
Foundation