

REPORT ON STEAM TURBINE MACHINERY

Date of writing Report

19

When handed in at Local Office

20 JUL 1936

Port of

Received at London Office...
LIVERPOOL

22 JUL 1936

No. in Survey held at

Birkenhead

Date, First Survey

15/11/35

Last Survey

3/7/1936

Reg. Book.

on the

S. S. 'City of Benares'

(Number of Visits 70)

Tons

Gross 11081

Net 6720

Built at

Glasgow

By whom built

Barclay Curle & Co Ltd

Yard No.

656

When built

1936

Engines made at

Birkenhead

By whom made

Cammell Laird & Co Ltd

Engine No.

2193

When made

1936

Boilers made at

Overland 7260

By whom made

Barclay Curle & Co Ltd

Boiler No.

656

When made

1936

Shaft Horse Power at Full Power

6600

Owners

Ellerman Papayanni Line

Port belonging to

Glasgow

Nom. Horse Power as per Rule

1390

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

STEAM TURBINE ENGINES, &c.—Description of Engines

Single Reduc. Gear turbine

No. of Turbines

Ahead three
Aster two

Direct coupled, single or double reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing 3, 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.

	Effective H.P.		Effective I.P.			Effective L.P.						
	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	17/8"	2'-2 1/4"	12	2"	2'-6"	8	3 1/2"	4'-0"	2	2 9/8"	3'-6 1/4"	2
2ND	17/8"	2'-2 3/4"	12	2 1/2"	2'-7"	8	4 1/4"	4'-1 1/2"	2	3 11/16"	3'-8 3/8"	2
3RD	2 1/4"	2'-3 1/2"	12	3 1/4"	2'-8 1/2"	8	5 1/4"	4'-3 1/2"	2	5 1/4"	3'-1 1/2"	2
4TH				4"	2'-10"	8	6 1/4"	4'-5 1/2"	2	5 1/4"	"	2
5TH				5 1/4"	3'-0 1/2"	8	8"	4'-9"	2	5 1/4"	"	2
6TH							9 3/4"	5'-0 1/2"	1			
7TH							9 3/4"	"	1			
8TH							9 3/4"	"	1			

Shaft Horse Power at each turbine 2200 Revolutions per minute, at full power, of each Turbine Shaft 1814

main shaft 92 Pitch Circle Diameter, 1st pinion 8.355 2nd pinion 1st reduction wheel main wheel 164.75

Width of Face, 1st reduction wheel main wheel 42 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,

1st pinion 17 3/4 2nd pinion 1st reduction wheel main wheel 3'-6 1/4 Flexible Pinion Shafts, diameter 1st 2nd

Pinion Shafts, diameter at bearings External 1st 7 1/4 2nd 13 1/4 diameter at bottom of teeth of pinion 1st 8.7789 2nd

Wheel Shafts, diameter at bearings, 1st main 21 diameter at wheel shroud, 1st main 13'-3 9/8

Generator Shafts, diameter at bearings Propelling Motor Shafts, diameter at bearings

Main Shafting, diameter of Tunnel Shafting as per rule as fitted diameter of Thrust Shafting as per rule as fitted

diameter of Screw Shaft as per rule 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 L.P. Turbine can exhaust direct to the Condenser

No. of Turbines fitted with astern wheels two 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 two - 12" dia x 24" stroke 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

W367-0105

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:—

As per attached list.

The foregoing is a correct description,

FOR AND ON BEHALF OF

CAMMELL LAIRD & Co. LIMITED

Manufacturer.

SECRETARY

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

Nov 15. 26. Dec 10. 17. 30. Jan 3. 6. 10. 14. 16. 20. 24. 28. 31. Feb 3. 7. 11. 14. 18. 19. 24. 26. 27. Mar 4. 6. 7. 11. 12. 13. 17. 18. 19. 20. 24. 25. 26. 27. 30. 31. Apr 2. 6. 15. 17. 20. 23. 24. 28. 29. 30. May 1. 4. 5. 12. 15. 16. 21. 25. 29. June 9. 16. 17. 18. 19. 23. 26. 29. 30. July 3.

Dates of Examination of principal parts—Casings

Wheel shaft

Thrust shaft

Tunnel shafts

Screw shaft

Propeller

Stern tube

Engine and boiler seatings

Engines holding down bolts

Completion of pumping arrangements

Boilers fixed

Engines tried under steam

Main boiler safety valves adjusted

Thickness of adjusting washers

Material and tensile strength of Rotor shaft

Steel 34-38 tons

Identification Mark on Do.

N° 1048, 258.

Material and tensile strength of Flexible Pinion Shaft

Identification Mark on Do.

Material and tensile strength of Pinion shaft

Nickel steel 40-45 tons

Identification Mark on Do.

N° 207, 1034, 281.

Material and tensile strength of 1st Reduction Wheel Shaft

Identification Mark on Do.

Material of Wheel shaft

Steel 40-45 tons

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

Steel

Test pressure

825 lb

Date of test

18.6.36, 3/7/36.

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

no

If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, etc.)

This Machinery has been constructed under special Survey + is in accordance with the Rules and the approved plans. The workmanship is good throughout. It has now been forwarded to Glasgow where it will be installed on board the vessel, + will in my opinion be eligible for Classification in Register book with record of + LMC (link date) on being satisfactorily reported upon.

It has been efficiently secured in position on board.

The amount of Entry Fee ... £

45/- Special Fee ... £

Donkey Boiler Fee ... £

Travelling Expenses (if any) ... £

When applied for,

20 JUL 1936

When received,

19.8.36. paid.

J. S. Milton

Engineer Surveyor to Lloyd's Register of Shipping.

TUE. 29 DEC 1936

Committee's Minute

LIVERPOOL 21 JUL 1936

GLASGOW

20 OCT 1936

Assigned

Deferred for comp.

See G. R. H. No. 57571.

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