

REPORT ON STEAM TURBINE MACHINERY.

No. 48922

Received at London Office

27 FEB 1929

Date of writing Report 22-2-1929 When handed in at Local Office 25-2-1928 Port of Glasgow
No. in Survey held at 22-2-1929 Date, First Survey 25-10-28 Last Survey 20 Feb 1929
Reg. Book. on the S.S. "Jumna"
Built at Govan By whom built A. Stephen & Sons Ltd Yard No. 522 Tons Gross 1929
Engines made at " By whom made " Engine No. 522 When made 1929
Boilers made at " By whom made " Boiler No. " When made 1929
Shaft Horse Power at Full Power 800 Owners Port belonging to
Nom. Horse Power as per Rule 133 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
Trade for which Vessel is intended Indian

STEAM TURBINE ENGINES, &c.—Description of Engines

Bauer Nach Installation B.W.3

No. of Turbines Ahead 1 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 1
Astern 1 double reduction geared
direct coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;
for supplying power for driving Propelling Motors, Type
rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

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							90 m/m	930 m/m	1			
2ND							107 "	964 "	1			
3RD							125 "	1000 "	1			
4TH							142 "	1030 "	1			
5TH							160 "	1070 "	1			
6TH							180 "	1110 "	1			
7TH							200 "	1150 "	1			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine H.P. 800 I.P. 3400 L.P. 3400
Revolutions per minute, at full power, of each Turbine Shaft 1st reduction wheel 580 main shaft 75
Rotor Shaft diameter at journals H.P. 236 m/m I.P. 236 m/m L.P. 236 m/m
Pitch Circle Diameter 1st pinion 8.7839" 1st reduction wheel 50.7737" 2nd pinion 12.2837" main wheel 92.2705"
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 245 m/m 1st reduction wheel 310 m/m 2nd pinion 485 m/m main wheel 560 m/m
Flexible Pinion Shafts, diameter at bearings 1st 250 m/m 2nd 250 m/m
Pinion Shafts, diameter at bearings External 1st 180 m/m 2nd 280 m/m Internal 1st 180 m/m 2nd 280 m/m
Wheel Shafts, diameter at bearings 1st 250 m/m 2nd 250 m/m
Generator Shaft, diameter at bearings 51.1467"
Propelling Motor Shaft, diameter at bearings 92.7678"
Intermediate Shafts, diameter as per rule 360 m/m
Thrust Shaft, diameter at collars as per rule 360 m/m
Tube Shaft, diameter as per rule 360 m/m
Screw Shaft, diameter as per rule 360 m/m
Is the tube screw shaft fitted with a continuous liner
Bronze Liners, thickness in way of bushes as per rule
Thickness between bushes as fitted
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
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 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

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

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

1 set bushes for bearings for main wheels,
pinions, and coupling, pads for thrust block, spare blades
for turbine, etc.

FOR WILLIAM BEARDMORE & CO., LIMITED.

Robert Love

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1928 Oct 25 Nov 1-5-13-20-27-29 Dec 5-10-13-17-24-28 (1929) Jan 7-15-30 Feb 5-12-18-20
{ During erection on board vessel --- }
Total No. of visits 20

Dates of Examination of principal parts—Casings 1-11-28 di Rotors 5-11-28 di Blading 15-1-29. di Gearing 5-11-28 di

Wheel shaft 13-11-28 di Thrust shaft 26-12-28 di 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

S. 32-36

Identification Mark

2675

Flexible Pinion Shaft, Material and tensile strength

Identification Mark

Pinion shaft, Material and tensile strength

N. S. 43-54

Identification Mark

2675

1st Reduction Wheel Shaft, Material and tensile strength

N. S. 43-54

Identification Mark

2675

Wheel shaft, Material

S

Identification Mark

2675

Thrust shaft, Material

S.

Identification Mark

2675

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 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, &c.)

This L. P. turbine, and
H. R. gearing, and hydraulic coupling has been built
under special survey in accordance with the
approved plans, and the Society's Rules, and requirements
the materials and workmanship are good.

The installation has been dispatched to A. Stephen &
Sons L^{td}, Govan, to be fitted on board.

The amount of Entry Fee

£

When applied for,

Special

£

13-6-

26 FEB 1929

Donkey Boiler Fee

£

When received,

Travelling Expenses (if any)

£

4-3-29

FRI. 7 JUN 1929

Committee's Minute

GLASGOW

26 FEB 1929

Assigned

Deferred.

Jas Cairns

Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation