

REPORT ON STEAM TURBINE MACHINERY.

No. 84490

Date of writing Report 19 When handed in at Local Office 22/7/1929 Port of Newcastle-on-Tyne. Received at London Office 23 JUL 1929

No. in Survey held at Wallsend Date, First Survey 19 Feb Last Survey 10 July 1929

Reg. Book. 1466 on the Two Bauer-Wach Turbines for the T.S.S. "Port Melbourne" (Number of Visits 27)

Built at Belfast By whom built Workman Black & Co. Yard No. - Tons Gross 915.2 Net 585.2

Engines made at Belfast By whom made ~ do ~ Engine No. - When built 1914-1

Boilers made at Walker By whom made Swan Hunter, W. R. & Co. Boiler No. 1320 When made 1929

Shaft Horse Power at Full Power Owners Laurence & Smith, Ltd. Port belonging to Swan

Nom. Horse Power as per Rule 21184. Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which Vessel is intended Great Britain

STEAM TURBINE ENGINES, &c.—Description of Engines Two Low Pressure Bauer-Wach Turbines.

No. of Turbines Ahead 1 Port 1 Star Direct coupled, single reduction geared } to 2 propelling shafts. No. of primary pinions to each set of reduction gearing One.

direct coupled to { Alternating Current Generator phase periods per second } 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															
2ND "										409/m.	890 w/m.	One			
3RD "										93 "	936 "	"			
4TH "										114 "	984 "	"			
5TH "										142 "	1034 "	"			
6TH "										140 "	1090 "	"			
7TH "										200 "	1150 "	"			
8TH "															
9TH "															
10TH "															
11TH "															
12TH "															

Shaft Horse Power at each turbine { H.P. - I.P. - L.P. 1266 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. - I.P. - L.P. 3500 } 1st reduction wheel 545 main shaft 84

Rotor Shaft diameter at journals { H.P. - I.P. - L.P. 140/m. } Pitch Circle Diameter { 1st pinion 230.956/m. 1st reduction wheel 1482.418/m. 2nd pinion 345.463/m. main wheel 2318.0468/m. } Width of Face { 1st reduction wheel 280/m. main wheel 540/m. }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 250.4380/m. 1st reduction wheel 246.91535/m. 2nd pinion 430/m. main wheel 550/m. }

Flexible Pinion Shafts, diameter { 1st 95/m. 2nd - } Pinion Shafts, diameter at bearings External 1st 140/m. 2nd 350/m. Internal 1st - 2nd 295/m. diameter at bottom of pinion teeth { 1st 216.3194/m. 2nd 360.826/m. }

Wheel Shafts, diameter at bearings { 1st 200/m. 2nd 500/m. } of shaft at wheel bearings { 1st 320/m. 2nd 543/m. } Generator Shaft, diameter at bearings { 1st 18.5" 2nd 14.19" } Propelling Motor Shaft, diameter at bearings { 1st 18.5" 2nd 14.19" }

Intermediate Shafts, diameter as per rule 18.5" as fitted 13.5" Thrust Shaft, diameter at collars as per rule 14.19" as fitted 360/m. Tube Shaft, diameter as per rule - as fitted -

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

Thickness between bushes as per rule - as fitted - 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

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 tankers 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 ☒ 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:— as per list attached

FOR SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

The foregoing is a correct description,

R. W. Wintour Manufacturer

Dates of Survey while building ☒ During progress of work in shops -- ☒ During erection on board vessel -- ☒
Total No. of visits 27

Dates of Examination of principal parts—Casings 12.4.29 Rotors 12.4.29 Blading 14.5.29 Gearing 12.4.29

Wheel shaft 12.4.29 Thrust shaft 12.4.29 Intermediate shafts ☒ Tube shaft ☒ Screw shaft ☒

Propeller ☒ Stern tube ☒ Engine and boiler seatings ☒ Engine holding down bolts 12.6.29

Completion of pumping arrangements ☒ Boilers fired ☒ Engines tried under steam ☒

Main boiler safety valves adjusted ☒ Thickness of adjusting washers ☒

Rotor shaft, Material and tensile strength Steel Identification Mark 12.4.29

Pinion shaft, Material and tensile strength Steel Identification Mark 12.4.29

Pinion shaft, Material and tensile strength Steel Identification Mark 12.4.29

Reduction Wheel Shaft, Material and tensile strength Steel Identification Mark 12.4.29

Wheel shaft, Material Steel Identification Mark 12.4.29

Intermediate shafts, Material ☒ Identification Marks ☒

Shaft, Material ☒ Identification Marks ☒

Thrust shaft, Material Steel Identification Mark 12.4.29

Tube shaft, Material ☒ Identification Marks ☒

Steam Pipes, Material ☒ Test pressure ☒

Date of test 10.4.29 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 S. S. "Port Sydney"

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

The machinery has been built under special survey in accordance with the approved plans, the Rules of the Society & has been recently fitted on board the vessel, tried under full working conditions & found satisfactory.

Certificate (if required) to be sent to...

The amount of Entry Fee ... £ ...

Special ... £ 42 : 4

Donkey Boiler Fee ... £ ...

Travelling Expenses (if any) £ ...

When applied for, 20 JUL 1929

When received, 25.7.29

Committee's Minute WED. 7 AUG 1929

Assigned See list attached

TUE. 31 DEC 1929

TUE. 19 AUG 1930

TUE. 14 JAN 1930

TUE. 20 JAN 1931

TUE. 5 DEC 1933

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