

REPORT ON STEAM TURBINE MACHINERY.

No. 84837

Received at London Office 16 OCT 1929

Date of writing Report

19

When handed in at Local Office

30 Sept 1929

Port of

Newcastle-on-Tyne

No. in Survey held at

Walker & Hebburn

Date, First Survey

23 Oct 1928

Last Survey

28 Sept 1929

Reg. Book.

31514 on the

Two Bauer-Wash turbines for the T.S.S. "Port Darwin"

(Number of Visits 31)

Gross 8218

Net 5164

Built at

Belfast

By whom built

Workman Clark & Co. Ltd.

When built

1918

Engines made at

do

By whom made

do

Engine No.

When made

1918

Boilers made at

Walker

By whom made

Luan Hume & Co. Ltd.

Boiler No.

When made

1929

Shaft Horse Power at Full Power

2000

Owners

Commonwealth, Dominion Ltd

Port belonging to

London

Nom. Horse Power as per Rule

333

Is Refrigerating Machinery fitted for cargo purposes

Yes

Is Electric Light fitted

Yes

Trade for which Vessel is intended

Meat Trade

STEAM TURBINE ENGINES, &c.—Description of Engines Two Bauer-Wash L.P. Turbines

No. of Turbines

Ahead 1 P.T. 1 S.T.R.D.

Direct coupled, single reduction geared

to two propelling shafts.

No. of primary pinions to each set of reduction gearing

Six

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							48 3/4"	890 3/4"	6			
2ND							93 "	936 "	"			
3RD							114 "	984 "	"			
4TH							142 "	1084 "	"			
5TH							140 "	1090 "	"			
6TH							200 "	1150 "	"			
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. : I.P. : L.P. 1000 ✓ } Revolutions per minute, at full power, of each Turbine Shaft { H.P. : I.P. : L.P. 3310 } 1st reduction wheel 676. main shaft 846.

Rotor Shaft diameter at journals { H.P. : I.P. : L.P. 140 3/4" } Pitch Circle Diameter { 1st pinion 230.95 1/2" 1st reduction wheel 1492.4 1/2" 2nd pinion 345.46 1/2" main wheel 2165.41 1/2" } Width of Face { 1st reduction wheel 250 1/2" main wheel 530 1/2" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 235.1365 1/2" 1st reduction wheel 260.1480 1/2" 2nd pinion 410 1/2" main wheel 530 1/2" }

Flexible Pinion Shafts, diameter { 1st 9 5/8" 2nd ~ } Pinion Shafts, diameter at bearings { 1st 190 1/4" 2nd 160 1/4" } External 1st 140 1/2" 2nd 340 1/2" Internal 1st ~ 2nd 285 1/2" diameter at bottom of pinion teeth { 1st 216.219 1/2" 2nd 360.826 1/2" }

Wheel Shafts, diameter at bearings { 1st 260 1/4" 2nd 500 1/4" } diameter at wheel shroud, { 1st 142 1/2" 2nd 204 1/2" } Generator Shaft, diameter at bearings. Propelling Motor Shaft, diameter at bearings.

Intermediate Shafts, diameter { as per rule : as fitted } Thrust Shaft, diameter at collars { as per rule : as fitted } 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.

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 } 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 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} _(an Auxiliary) 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:—

As per attached list.

FOR
SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

R. W. Wintour Manufacturer

The foregoing is a correct description,

SECRETARY

Dates of Survey while building
During progress of work in shops -- 1928 6th 23 Nov 22 Jan 22 May 1 29 June 3 July 4 5 8 15 16 22 23 26 31 Aug 1 7 8 9 13 19 22
During erection on board vessel --- 30th Sep 3 4 12 19 20 25 27 28
Total No. of visits 31

Dates of Examination of principal parts—Casings 23. 4. 29, Rotors 23. 4. 29, Blading 23. 4. 29, Gearing 23. 4. 29

Wheel shaft 23. 4. 29, Thrust shaft 23. 4. 29, Intermediate shafts —, Tube shaft —, Screw shaft —

Propeller —, Stern tube —, **TURBINE** Engine and boiler seatings 19. 8. 29, **TURBINE** Engine holding down bolts 12. 9. 29

Completion of pumping arrangements —, Boilers fixed —, Engines tried under steam 25th Sept also see trials 27th 28th Sept

Main boiler safety valves adjusted —, Thickness of adjusting washers —

Rotor shaft, Material and tensile strength **Steel**, Please see Identification Mark 460505

~~Pinion~~ Shaft, Material and tensile strength **Steel**, attached Identification Mark 23. 4. 29

~~Pinion~~ shaft, Material and tensile strength **Steel**, Reports Identification Mark "

~~Reduction~~ Wheel Shaft, Material and tensile strength **Steel** Identification Mark "

Wheel shaft, Material **Steel** Identification Mark 23. 4. 29 Thrust shaft, Material **Steel** Identification Mark "

Intermediate shafts, Material **Steel** Identification Marks .. Tube shaft, Material — Identification Marks —

~~Impeller~~ shaft, Material **Steel** Identification Marks .. Steam Pipes, Material — Test pressure

Date of test .. Is an installation fitted for burning oil fuel **No**

Is the flash point of the oil to be used over 150°F. .. Have the requirements of the Rules for the use of oil as fuel been complied with

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo .. If so, have the requirements of the Rules 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 Bauer-Wach LP Turbine installation constructed under special survey the materials & workmanship found good & satisfactory working & sea trials carried out.

The amount of Entry Fee ... £ : : When applied for, 12.6 OCT 1929
Special ... £ 33 : 6
Donkey Boiler Fee ... £ : :
Late fee appl. 1.10.19 1 : 1 :
Traveling Expenses (if any) £ : :
When received, 26.10.29

Committee's Minute TUE. 29 OCT 1929
Assigned See Rev. p. 19 attached

© 2020
TUE. 29 APR 1930
Lloyd's Register Foundation
TUE. 5 MAY 1929

All 905 due 1.30 Held. Machinery

Certificate (if required) to be sent to
(The Surveyors are requested not to write on or below the space for Committee's Minute.)