

REPORT ON STEAM TURBINE MACHINERY.

No. 93942

Received at London Office... 8 JUL 1936

pt. 4a.

Date of writing Report 19 When handed in at Local Office 27th 10 36 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle on Tyne Date, First Survey 31 Aug 135 Last Survey 1st July 1936

Reg. Book. on the Steel Tug Se "UMTALI" (Number of Visits)

Tons Gross 8158 Net 5084

Built at Newcastle on Tyne (Walker) By whom built S.H.W.R.L. Yard No. 1492 When built 1936

TURBINE Engines made at do By whom made S.H.W.R.L. Engine No. 1492 When made 1936

Boilers made at do By whom made S.H.W.R.L. Boiler No. 1492 When made 1936

Shaft Horse Power at Full Power 6668 Owners Bullard King & Co. Ld Port belonging to LONDON

Nom. Horse Power as per Rule 1118 Is Refrigerating Machinery fitted for cargo purposes $\frac{1}{2}$ Is Electric Light fitted $\frac{1}{2}$

Trade for which Vessel is intended U.K. - SOUTH AFRICA.

STEAM TURBINE ENGINES, &c.—Description of Engines TWO-L.P. EXH. STEAM BAUER-WACH TURBINES

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

Astern — 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						61 1/2"	822 1/2"	1			
2ND						79 "	858 "	1			
3RD						97 "	894 "	1			
4TH						115 "	930 "	1			
5TH						137 "	974 "	1			
6TH						160 "	1020 "	1			
7TH						185 "	1070 "	1			
8TH											
9TH											
10TH											
11TH											
12TH											

Shaft Horse Power at each turbine H.P. ☒ I.P. ☒ L.P. 1174. Revolutions per minute, at full power, of each Turbine Shaft H.P. ☒ I.P. ☒ L.P. 3780 1st reduction wheel 771. main shaft 120.

Rotor Shaft diameter at journals H.P. ☒ I.P. ☒ L.P. 125 $\frac{1}{4}$ Pitch Circle Diameter 1st pinion 271.5281 $\frac{1}{4}$ 1st reduction wheel 1330.4577 $\frac{1}{4}$ Width of Face 1st reduction wheel 225 $\frac{1}{4}$ main wheel 530 $\frac{1}{4}$ 2nd pinion 309.541 $\frac{1}{4}$ main wheel 1911.5518 $\frac{1}{4}$

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 242.5 $\frac{1}{4}$ 1st reduction wheel 372.5 $\frac{1}{4}$ 1447.5 $\frac{1}{4}$ 2nd pinion 390 $\frac{1}{4}$ main wheel 480 $\frac{1}{4}$

Flexible Pinion Shafts, diameter 1st ☒ 2nd ☒ Pinion Shafts, diameter at bearings External 1st 115 $\frac{1}{4}$ 2nd 280 $\frac{1}{4}$ diameter at bottom of pinion teeth 1st 256.883 $\frac{1}{4}$ 2nd 294.896 $\frac{1}{4}$ Internal 1st 1260 $\frac{1}{4}$ 2nd 230 $\frac{1}{4}$

Wheel Shafts, diameter at bearings 1st 190 $\frac{1}{4}$ 2nd 220 $\frac{1}{4}$ main 440 $\frac{1}{4}$ diameter at wheel shroud, 1st 1260 $\frac{1}{4}$ 2nd 1820 $\frac{1}{4}$ 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 } shaft fitted with a continuous liner { screw }

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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter Pitch No. of Blades State whether reversible 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 Pump 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

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BOILERS, &c.—(Letter for record ✓) Total Heating Surface of Boilers

Is Forced Draft fitted. No. and Description of Boilers

Is a Report on Main Boilers now forwarded?

Working Pressure

Is { a Donkey } Boiler fitted?
{ an Auxiliary }

If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only?

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

Has the spare gear required by the Rules been supplied Yes.

SPARE GEAR.

State the principal additional spare gear supplied

See attached List.

The foregoing is a correct description,

G. J. Sweeney

Manufacturer.

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

Included in Recip. machy Rpt.

Dates of Examination of principal parts—Casings 5/2/36 5/2/36 Rotors 5/2/36 Blading 26/2/36 Gearing 4/2/36

Wheel shaft 4/2/36 Thrust shaft 4/2/36 Intermediate shafts ✓ Tube shaft ✓ Screw shaft ✓

Propeller ✓ Stern tube ✓ Engine and boiler seatings ✓ Engine holding down bolts ✓

Completion of fitting sea connections ✓ Completion of pumping arrangements ✓ Boilers fired ✓ LPTURBINES

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓ Engines tried under steam 5/21/2/36

1st Redn. Flex. Transmission Shaft S.M. Steel 42 & 43 ton / 22 & 22.5 ton / sq in. Identification Mark 146 HMC. S.W.

1st Redn. Pinion Shaft, Material and tensile strength Nickel Steel P.T.S. 45. ton Identification Mark 254. S.W.

2nd Redn. Pinion shaft, Material and tensile strength Nickel Steel P. 46 T. : 5 44.5 T / sq in. Identification Mark 574. W.K.

1st Reduction Wheel Shaft, Material and tensile strength S.M. Steel P.T.S. 31 ton / sq in. Identification Mark 265. S.W.

Wheel shaft, Material S.M. Steel Identification Mark 8135. J.D. Thrust shaft, Material S.M. Steel Identification Mark 8066 J.D.

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 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 ✓

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with ✓

Is this machinery a duplicate of a previous case Yes If so, state name of vessel UMTATA, New Rpt.

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

The machinery has been built under special survey in accordance with the Rules, satisfactorily installed and tried under steam under full working conditions. The materials & workmanship are good.

The amount of Entry Fee ... £ ...
Special ... £ ...
Donkey Boiler Fee ... £ ...
Travelling Expenses (if any) £ ...
When applied for, 19...
When received, 19...

A. Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 10 JUL 1936

Assigned

See Mr. Watt's Rpt.
93942



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