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REPORT ON STEAM TURBINE MACHINERY. No. 93391

Received at London Office 20 JAN 1936

date of writing Report 23/1/36 When handed in at Local Office 27/1/36 Port of **NEWCASTLE-ON-TYNE**
 No. in Survey held at **Newcastle on Tyne (Walker)** Date, First Survey 16th Dec 1935 Last Survey 23rd Jan 1936.
 Reg. Book. on the **Steam Trawler** (Number of Visits 9)

built at **Hull** By whom built **Cook, Welton & Gemmel Ltd** Yard No. 607. When built
 Engines made at **Hull** By whom made **C.D. Holmes & Co Ltd** Engine No. 1492. When made
 Turbine made at **Newcastle on Tyne** By whom made **Swan Hunter & Wigham, Turbine** No. 1510 When made 1936.
 Shaft Horse Power at Full Power 304 Owners **Richardson & Co**
 Nom. Horse Power as per Rule 51. Is Refrigerating Machinery fitted for cargo purposes ☒ Is Electric Light fitted ☒
 Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines **Bauer-Wach Exhaust Steam Turbine**
 No. of Turbines Ahead **One** Direct coupled, single reduction geared to **One** propelling shaft. No. of primary pinions to each set of reduction gearing **one**
 Astern **—** double reduction geared

Not coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;
 supplying power for driving Propelling Motors, Type
 Direct coupled, single or double reduction geared to propelling shafts

TURBINE LOADING.	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.
17/2/36							23 ^{1/2} "	396 ^{1/2} "	1			
"							34 "	418 "	1			
"							44 "	438 "	1			
"							54 "	458 "	1			
"							65 "	480 "	1			
"							75 "	500 "	1			
"							87 "	524 "	1			
"							100 "	550 "	1			

Shaft Horse Power at each turbine { H.P. ☒ I.P. ☒ L.P. 304 ☒ Revolutions per minute, at full power, of each Turbine Shaft { H.P. ☒ I.P. ☒ L.P. 6800 ☒
 1st reduction wheel 715
 main shaft 116
 Pinion Shaft diameter at journals { H.P. ☒ I.P. ☒ L.P. 99.9^{1/2}" ☒ Pitch Circle Diameter { 1st pinion 115.718^{1/2}" ☒ 2nd pinion 201.342^{1/2}" ☒
 1st reduction wheel 1101.185^{1/2}" ☒ main wheel 1191.727^{1/2}" ☒
 1st pinion 112^{1/2}" ☒ 2nd pinion 268^{1/2}" ☒ main wheel 275^{1/2}" ☒
 1st reduction wheel 196^{1/2}" ☒ main wheel 340^{1/2}" ☒
 1st 109.94^{1/2}" ☒ 2nd 197.64^{1/2}" ☒

Pinion Shafts, diameter at bearings External 1st 99.9^{1/2}" ☒ 2nd 180^{1/2}" ☒ Internal 1st 20^{1/2}" ☒ 2nd — ☒
 Generator Shaft, diameter at bearings 1st 1030^{1/2}" ☒ main 1087^{1/2}" ☒
 Propelling Motor Shaft, diameter at bearings ☒
 Thrust Shaft, diameter at collars as per rule ☒ as fitted 220 + 205^{1/2}" ☒

Intermediate Shafts, diameter as per rule ☒ as fitted ☒
 Main 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 ☒

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 hull 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 ☒
 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.
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine ☒ No. ☒
 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 ☒
 Last Pumps, No. and size ☒
 Lubricating Oil Pumps, including Spare Pump, No. and size ☒
 Two independent means arranged for circulating water through the Oil Cooler ☒
 Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge In Pump Room ☒

Water Circulating Pump Direct Bilge Suctions, No. and size ☒
 Independent Power Pump Direct Suctions to the Engine Room ☒
 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 fitted 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 ☒
 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 ☒

Shipping. ☒

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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?

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

SPARE GEAR.
Yes. viz. 2 studs & nuts each for turbine bearings & pinion beater
2 tap bolts for 2nd redn wheel bearings,
2 bolts & nuts for turbine casing joint & gear case
2 Studs & nuts for gear case middle joint, top joint
14 Michell pads for main thrust bearing,
1 thrust ring for 2nd redn pinion thrust bearing
10 Michell pads for turbine thrust bearing,
2 liners for turbine thrust bearing,
1 Spring & set of washers for turbine governor

State the principal additional spare gear supplied

For SWAN, HUNTER, & WIGHAM RICHARDSON, Limited.

Geo. M. Brough.

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } 1935 Dec. 16. 24. 1936 Jan. 3. 8. 14. 16. 20. 22. 23.
{ During erection on board vessel - - }
Total No. of visits 9.
Dates of Examination of principal parts—Casings 8-1-36 Rotors 3-1-36 Blading 23-1-36 Gearing 20-1-36
Wheel shaft 20-1-36 Thrust shaft 20-1-36 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 fixed ✓ B.W. Turbine Engines tried under steam 22-1-
Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓
Rotor shaft, Material and tensile strength S.M. Steel 38.4 tons/ft² Identification Mark 5920 HAI. 915
1st Redn Pinion shaft, Material and tensile strength S.M. Steel 45.2 tons/ft² Identification Mark 5918 HAI. 6377
2nd Redn Pinion shaft, Material and tensile strength S.M. Steel 45.0 tons/ft² Identification Mark 5918 HAI. 6581
1st Reduction Wheel Rim, Material and tensile strength S.M. Steel 32.4 tons/ft² Identification Mark 5920 HAI. 929
2nd Redn Wheel shaft, Material S.M. Steel Identification Mark 5920 HAI. 939 WHEEL- Thrust shaft, Material S.M. Steel Identification Mark 5920 HAI. 92
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 Kingston Chrysoberyl.
General Remarks (State quality of workmanship, opinions as to class, &c.) SHWR No 1474. H.C. Rpt 9228
also " No 1472, " " 9227
" No 1470, " " 9227

The Machinery has been constructed under Special Survey in accordance with the rules, The turbine was examined under steam on test bed, and found satisfactory. The materials & workmanship are good. The machinery is being forwarded to Hull to be installed in conjunction with Reciprocating Engines.

The amount of Entry Fee ... £ 3 : 8 :
Special 2 2/3 at 7/6 £ 3 : 8 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 29 JAN 1936
When received, 11-2-1936

A. Watt.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 10 MAR 1936

Assigned

See Hull J.E. 46607



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