

REPORT ON STEAM TURBINE MACHINERY.

No. 95095
JUN -1 1937

Date of writing Report 10 When handed in at Local Office 12/9/36 Port of NEWCASTLE-ON-TYNE Received at London Office
No. in Survey held at Newcastle on Tyne Date, First Survey 14 April/36 Last Survey 3rd Sept 1936
Reg. Book. on the S/S. (Number of Visits 22.)

Built at S. Shields By whom built John Readhead & Sons Ltd Yard No. 508 Tons Gross 6803 Net 4194
Engines made at do By whom made do When built
Bottom made at Newcastle By whom made Swan Hunter & Wigham, Riddell & Co. Engine No. 508 When made 1936
Shaft Horse Power at Full Power 1558 Owners
Nom. Horse Power as per Rule 260 Is Refrigerating Machinery fitted for cargo purposes Port belonging to
Trade for which Vessel is intended Is Electric Light fitted

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 shafts. No. of primary pinions to each set of reduction gearing one
Asteron — 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												
2ND							76 1/2"	1002 1/2"	one			
3RD							100 "	1050 "	"			
4TH							124 "	1098 "	"			
5TH							148 "	1146 "	"			
6TH							183 "	1216 "	"			
7TH							220 "	1290 "	"			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine H.P. — I.P. — L.P. 1558
Revolutions per minute, at full power, of each Turbine Shaft H.P. — I.P. — L.P. 2990
Rotor Shaft diameter at journals H.P. — I.P. — L.P. 170 1/2"
Pitch Circle Diameter 1st pinion 276.959 1/2" 1st reduction wheel 1808.376 1/2" 2nd pinion 461.598 1/2" main wheel 2329.709 1/2"
Width of Face 1st reduction wheel 290 1/2" main wheel 660 1/2"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 340.94 295 1/2" 1st reduction wheel 1855 1/2" 2nd pinion 505 1/2" main wheel 590 1/2"
Flexible Pinion Shafts, diameter 1st 110 1/2" Pinion Shafts, diameter at bearings External 1st 170 1/2" 2nd 420 1/2" Internal 1st — 2nd 355 1/2"
diameter at bottom of pinion teeth 1st 262.31 1/2" 2nd 446.95 1/2"

Wheel Shafts, diameter at bearings 1st 300 1/2" diameter at wheel shroud, main 550 1/2" out 445 1/2"
Intermediate Shafts, diameter as per rule 15 3/8" as fitted — Generator Shaft, diameter at bearings 1st 1738 1/2" 2nd 2237 1/2"
Propelling Motor Shaft, diameter at bearings 15.93" as fitted 416 1/2" (16.38")

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 —
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, slate type —
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 L.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 Two 9" x 8" x 18"
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 —
Holds, &c. —

Main 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-bones —
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 —
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 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 No 1/2/36 Main Boilers Auxiliary Boilers Donkey Boilers
 (If not state date of approval)
 Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
 State the principal additional spare gear supplied. One set "Michell" pads for 2nd Redn. Thrust Block. One spring + one set of washers for Turbine Emergency Governor.

FOR SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

E. J. Stuey
 DIRECTOR

Manufacturer.

The foregoing is a correct description,

1936
 Dates of Survey while building: During progress of work in shops -- Apr. 14, 16, 23, 28. May 4, 12, 13, 20, 25. June 5, 12, 15, 29. July 6, 7, 14, 17, 20, 30.
 During erection on board vessel --- Aug. 24. Sep. 1, 3.
 Total No. of visits 22.
 Dates of Examination of principal parts—Casings 12/5/36 Rotors 25/5/36 Blading 3/9/36 Gearing 20/7/36
 Wheel shaft 20/7/36 Thrust shaft 7/7/36 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 Turbine Engines tried under steam in Shop 1/9/36
 Main boiler safety valves adjusted Thickness of adjusting washers
 Rotor shaft, Material and tensile strength S.M. Steel 39.8 tons/in² Identification Mark 10591 J.L.
 FLEXIBLE 1st REDN. SHAFT. S.M. Steel 38.2 tons/in² Ident. mark 508 G.B.
 Pinion Shaft, Material and tensile strength S.M. Nickel steel 45.9 tons/in² Identification Mark 10388 J.L.
 2nd Pinion shaft, Material and tensile strength S.M. Steel 43.2 tons/in² Identification Mark 5229 J.Q.
 1st Reduction Wheel Shaft (FOR HYDR. COUPLING) Material and tensile strength S.M. Steel 32.3 tons/in² Identification Mark 507 G.B.
 MAIN Wheel shaft, Material S.M. Steel Identification Mark 5227 J.Q. Thrust shaft, Material S.M. Steel Identification Mark 2966 F.S.
 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 S/S New Rpt. (SHRWR'S TURB. NO 1496)

General Remarks (State quality of workmanship, opinions as to class, &c.)
 This Exhaust Steam Turbine and D/R. Gearing has been constructed under special survey in accordance with the Rules and approved plans and the materials and workmanship are good.
 The installation has been sent to S. Shields to be fitted on board the ship, yard no 508, built by John Readhead & Sons Lt.

The amount of Entry Fee ... £ : :
 Special 2/3rd ... £ 17 : 7 : 30 JAN 1937
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : : 11 Feb 1937

R. Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned See Awt. 76.95095
 FRI 4 JUN 1937

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

See Record P.C. Generator & Cert of Compliance Adjustment