

Report on Steam Turbine Machinery.

MOB. 17824

No. 18607

Date of writing Report 7/12/1944 When handed in at Local Office 7/12/1944 Port of W. Hartlepool
 Date, First Survey 24-12-43 Last Survey 1-12-1944
 (Number of Visits 72)
 on the S/S "WAVE GOVERNOR"
 Tons (Gross 819.6 Net 456.8)
 Built at Haverton Hill By whom built Furness S. B. Co. Yard No. 362 When built 1945.
 Engines made at Hartlepool By whom made Richardson Westgarth Engine No. 2451 When made 1944
 Boilers made at " By whom made " Boiler No. 2451 When made 1944
 Shaft Horse Power at Full Power 6800 Owners Port belonging to
 Nom. Horse Power as per Rule 1215 1226 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes
 Trade for which Vessel is intended 1226 M.N. 1470

STEAM TURBINE ENGINES, &c.—Description of Engines Double Reduction Geared Turbines
 No. of Turbines Ahead 2 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Astern 1 double reduction geared
 Direct coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 or 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	H. P.			I. P.			L. P.			ASTERN.		
BLADING.	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	1.23	17.46	7				1.324	39.75	3	4	49.5	1
2nd "	1.52	18.04	7				1.896	cyl.	1	7	52.75	1
3rd "	1.68	18.36	6				2.468	bore	1	9	55	1
4th "	2.07	19.14	6				3.109	tapered	1	(Rotor)		
5th "	2.58	20.16	6				3.824	between	1			
6th "	above blading preceded						4.539	1st	1			
7th "	by 2 Row impulse wheel				Rotor outlet		5.3	2nd	1	Impulse Blading		
8th "	above particulars below			NOTE			6.13	expansions	1			
9th "	7.15	30.47	1	all dimensions			7.047		1			
10th "	1.68	31.69	1	in inches			8.185		1			
11th "							9	56	1			
12th "												

Shaft Horse Power at each turbine H.P. 3500 I.P. 3300 L.P. 2863
 Revolutions per minute, at full power, of each Turbine Shaft
 1st pinion 1st reduction wheel
 2nd pinion main wheel
 Width of Face 1st reduction wheel
 main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings
 1st pinion 1st reduction wheel
 2nd pinion main wheel

Pinion Shafts, diameter at bearings
 1st 2nd
 Generator Shaft, diameter at bearings
 Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter
 as per rule 15.54
 as fitted 16
 Thrust Shaft, diameter at collars
 as per rule 17.04
 as fitted 17.34

Tube Shaft, diameter
 as per rule 8.21
 as fitted 7.8
 Thickness between bushes
 as per rule 6.15
 as fitted 3.4
 Is the after end of the liner made water tight 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
 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
 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

propeller, diameter 18'-0" Pitch Varying No. of Bades 4 State whether Moveable NO Total Developed Surface 121 square feet.
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. & L.P. Turbines exhaust direct to the condenser Yes
 No. of Turbines fitted with astern wheels one Feed Pumps No. and size 2-3" Turbo Feed Pumps
 How driven Steam

Pumps connected to the Main Bilge Line No. and size 1-10"x9"x10" Fire & Bilge, 1-10"x9"x10" Ballast
 How driven Steam
 Ballast Pumps, No. and size 1-10"x9"x10" Lubricating Oil Pumps, including Spare Pump, No. and size 2-9"x8"x18"
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary

Bilge Pumps, No. and size:—In Engine and Boiler Room 4-3 1/2" + 2-2 1/2" E. & B. Space, 1-2 1/2" Tunnel Well Pump Room
 Holds, &c.
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-13 1/2" Independent Power Pump Direct Suctions to the Engine Room
 Bilges, No. and size 1-5" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

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 Yes
 Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes
 What pipes pass through the bunkers How are they protected
 That 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 Yes
 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 Yes Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

004300-004307-0028

Total H.S. (2) Boilers 6840
(2) S/Ls 1660 } 10905 sq ft
(2) Econ. 2405 }
59%

BOILERS, &c. (Letter for record S) Total Heating Surface of Boilers 6840 Sq. ft. ✓
Is Forced Draft fitted Yes ✓ No and Description of Boilers 2 Foster Wheeler "H" Type Working Pressure 480 LB. ✓
Is Report on Main Boilers now forwarded? Yes ✓ If so, is a report now forwarded?

Is Donkey Boiler fitted? Yes ✓
Is Donkey boiler intended to be used for domestic purposes only? ✓
Plans: Are approved plans forwarded herewith for Shafting 25/6/42 Main Boilers 18/6/42 Auxiliary Boilers ✓ Donkey Boilers 29/6/42
(If not, state date of approval)
Superheaters 22/7/42 General Pumping Arrangements 30/9/43 Oil Fuel Burning Arrangements 1/6/44

Is the spare gear required by the Rules been supplied? ✓
State the principal additional spare gear supplied: ✓

By ROYAL LLOYD REGISTER
The foregoing is a correct description,
DIRECTOR Manufacture

Dates of Survey while building
During progress of work in shops 1943: Dec 24, Jan 1, Feb 3, 11, 16, 19, Mar 2, 20, 21, 23, Apr 3, 6, 19, 22, 24, May 3, 4, 11, 12, 17, 19, 23, June 7, 8, 13, 15, 21, 26, 30, July 3, 13, 18, 24, 25, Aug 10, 16, 23, 25, 28, 29, 30, Sept 1, 6, 7, 9, 12, 20, 21, 29, Oct 3, 6, 9, 12, 16, 18, 19, 24, 25, Nov 2, 6, 7, 8, 9, 10, 13, 14, 15, 16, 23, 24, 28, 30, Dec 1
During erection on board vessel
Total No. of visits 78

Dates of Examination of principal parts—Casings 15/6/44 Rotors 15/6/44 Blading 22/9/44 Gearing ✓
Wheel shaft ✓ Thrust shaft 17/5/44 Intermediate shafts 6/11/44 Tube shaft ✓ Screw shaft 29/9/44
Propeller Stern tube 1/11/44 Engine and boiler seatings Engine holding down bolts
Completion of fitting sea connections Completion of pumping arrangements Boilers fixed Engines tried under steam
Main boiler safety valves adjusted Thickness of adjusting washers
Rotor shaft, Material and tensile strength steel 34/38 Identification Mark S7910
Flexible Coupling Shaft, Material and tensile strength stars 28/32 Sleeves 34/38 Identification Mark 1064 JLS
Pinion shaft, Material and tensile strength ✓ Identification Mark ✓
1st Reduction Wheel Shaft, Material and tensile strength ✓ Identification Mark ✓
Wheel shaft, Material ✓ Identification Mark ✓ Thrust shaft, Material steel Identification Mark 13335 E
Intermediate shafts, Material steel Identification Marks 13335 HAI Tube shaft, Material Identification Marks ✓
Screw shaft, Material steel Identification Marks 13335 HAI Steam Pipes, Material S.D. steel Test pressure 1440
Date of test 5.12.44 & subsequently ✓ Is an installation fitted for burning oil fuel Yes ✓ 1490
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 2448

General Remarks. (State quality of workmanship, opinions as to class, &c.) The engine & boilers of this vessel have been constructed under Special Survey & in accordance with the approved plans & Specification (Gearing by Power Plant Co. See London Rpt. 112152 attached). The workmanship & materials have been found good. The machinery of this vessel has been forwarded to Haverton Hill for fitting in Furness S.B. Co's Yard No 362. The machinery of this vessel will be eligible, in my opinion, to have record of +LMC with date - on completion.

Note: Engine No 2452 has been allocated to this vessel & has now been re-numbered 2451.

The amount of Entry Fee ... £ 6 : 0 : When applied for
Special 4 LMC ... £ 82 : 8 : 1 7/12/44
(less 1 dram 4 1/2 pence)
Donkey Boiler Fee ... £ 92 : 6 : 9
Supervision
Travelling Expenses (if any) £ 28 : 13 : 8 19

Committee's Minute
Assigned. See F.E. machy. rpt.

FRI 13 APR 1945
Lloyd's Register Foundation