

# Report on Steam Turbine Machinery.

*Generating*

Bl. 14714

No. 117096

8-MAR-1949

Date of writing Report 15 SEP 1948 When handed in at Local Office 15 SEP 1948 Port of London  
 No. in Survey held at Peterborough Date, First Survey 22. 6. 48 Last Survey 7. 9. 1948  
 (Number of Visits 7) Tons {Gross. Net.  
 on the Belfast By whom built Thos. Harland & Wolff Yard No. 1354 When built 1948  
 engines made at Peterborough By whom made Thos. P. Brotherhood Engine No. 97300 When made 1948  
 boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_  
 shaft Horse Power at Full Power 940 (each) Owners Royal Train Line Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Rule 156 (each) Is Refrigerating Machinery fitted for cargo purposes \_\_\_\_\_ Is Electric Light fitted \_\_\_\_\_  
 Trade for which Vessel is intended \_\_\_\_\_

## STEAM TURBINE ENGINES, &c.—Description of Engines I + 7 Rotian stages

No. of Turbines one Direct coupled, single reduction geared } to \_\_\_\_\_ propelling shafts. No. of primary pinions to each set of reduction gearing \_\_\_\_\_  
 Astern \_\_\_\_\_ Double reduction geared }  
 Direct coupled to { Alternating Current Generator \_\_\_\_\_ phase \_\_\_\_\_ periods per second \_\_\_\_\_ rated 700 Kilowatts. 225 Volts at 750 revolutions per minute;  
 Direct Current Generator \_\_\_\_\_  
 for supplying power for driving \_\_\_\_\_ Propelling Motors, Type ships auxiliaries  
 rated \_\_\_\_\_ Kilowatts \_\_\_\_\_ Volts at \_\_\_\_\_ revolutions per minute. Direct coupled, single or double reduction geared to \_\_\_\_\_ propelling shafts.

TURBINE STAGING.	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	.78	21.78	1									
2nd "	1.83	22.83	1									
3rd "	.95	22.95	1									
4th "	.95	22.95	1									
5th "	1.07	23.07	1									
6th "	1.64	23.64	1									
7th "	2.51	25.01	1									
8th "	3.11	26.11	1									
9th "	3.9	26.9	1									
10th "												
11th "												
12th "												

shaft Horse Power at each turbine { H.P. 940 ..... 1st reduction wheel 750  
 I.P. \_\_\_\_\_ ..... I.P. \_\_\_\_\_  
 L.P. \_\_\_\_\_ ..... L.P. \_\_\_\_\_ main shaft \_\_\_\_\_  
 Motor Shaft diameter at journals { H.P. 3 1/2" ..... Pitch Circle Diameter { 1st pinion 5.79" ..... 1st reduction wheel 46.201 Width of Face { 1st reduction wheel 12"  
 I.P. \_\_\_\_\_ ..... 2nd pinion \_\_\_\_\_ ..... main wheel \_\_\_\_\_  
 L.P. \_\_\_\_\_ .....  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 9 3/8" ..... 1st reduction wheel 10 3/4"  
 2nd pinion \_\_\_\_\_ ..... main wheel \_\_\_\_\_  
 Flexible Pinion Shafts, diameter at bearings { External 1st { 4 3/4" ..... 2nd { \_\_\_\_\_ diameter at bottom of pinion teeth  
 Internal 1st { \_\_\_\_\_ ..... 2nd { \_\_\_\_\_  
 Wheel Shafts, diameter at bearings { 1st 6 4/5" ..... diameter at wheel shroud, { 1st 4 2 3/4" Generator Shaft, diameter at bearings 5"  
 main \_\_\_\_\_ ..... main \_\_\_\_\_ Propelling Motor Shaft, diameter at bearings \_\_\_\_\_  
 Intermediate Shafts, diameter as per rule \_\_\_\_\_ Thrust Shaft, diameter at collars as per rule \_\_\_\_\_  
 as fitted \_\_\_\_\_ as fitted 6"  
 Tube Shaft, diameter as per rule \_\_\_\_\_ Screw Shaft, diameter as per rule \_\_\_\_\_ Is the { tube } shaft fitted with a continuous liner { \_\_\_\_\_  
 as fitted \_\_\_\_\_ as fitted \_\_\_\_\_ as fitted \_\_\_\_\_ as fitted \_\_\_\_\_ as fitted \_\_\_\_\_ 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 \_\_\_\_\_  
 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 \_\_\_\_\_  
 aft \_\_\_\_\_ If so, state type \_\_\_\_\_ Length of Bearing in Stern Bush next to and supporting propeller \_\_\_\_\_ square feet.  
 Propeller, diameter \_\_\_\_\_ Pitch \_\_\_\_\_ No. of Bades \_\_\_\_\_ State whether Moveable \_\_\_\_\_ Total Developed Surface \_\_\_\_\_  
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine \_\_\_\_\_ Can the H.P. or I.P. Turbines 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 1 Gear, 1 Semi-stationary  
 Are two independent means arranged for circulating water through the Oil Cooler \_\_\_\_\_ Suctions, connected both to Main Bilge Pumps and Auxiliary \_\_\_\_\_  
 Bilge Pumps, No. and size:—In Engine and Boiler Room \_\_\_\_\_ In Pump Room \_\_\_\_\_  
 Holds, &c. \_\_\_\_\_ Independent Power Pump Direct Suctions to the Engine Room \_\_\_\_\_  
 Main Water Circulating Pump Direct Bilge Suctions, No. and size \_\_\_\_\_  
 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 \_\_\_\_\_  
 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 \_\_\_\_\_  
 Are they protected \_\_\_\_\_  
 What pipes pass through the bunkers \_\_\_\_\_  
 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 \_\_\_\_\_  
 Is the Shaft Tunnel watertight \_\_\_\_\_ Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_  
 Is the Shaft Tunnel watertight \_\_\_\_\_ Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

P.S.  
 11/10/48  
 S. J. G.  
 Over

4A 117096

**BOILERS, &c.**—(Letter for record.....) Total Heating Surface of Boilers..... Working Pressure.....  
 Is Forced Draft fitted..... No. and Description of Boilers.....  
 Is a Report on Main Boilers now forwarded?.....  
 Is { a Donkey } Boiler fitted?..... If so, is a report now forwarded?.....  
 { an Auxiliary }  
 Is the donkey boiler intended to be used for domestic purposes only.....  
 Plans. Are approved plans forwarded herewith ~~17.12.47~~ 17.12.47. Main Boilers..... Auxiliary Boilers..... Donkey Boilers.....  
 (If not, state date of approval) Oil Fuel Burning Arrangements.....  
 Superheaters..... General Pumping Arrangements.....

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied.....  
 State the principal spare gear supplied. 1. Set of turbine bearings 1 Set of thrust pads  
 20 of turbine blades 20 of bolts & nuts 1. Tube nest for oil cooler 1 Set of gear  
 box bearings 2% of condenser tubes & 6% of packing and ferrules  
 1 Extractor condenser rotor complete with bearings  
 1 Accumulator rotor

For PETER BROTHERHOOD LTD.

*S. J. Bellamy*  
DIRECTOR

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } 1948: June 22, 29, July 13, Aug 20, 23, 31, Sept 7.  
 { During erection on board vessel - - }  
 Total No. of visits 7 In Shops

Dates of Examination of principal parts—Casings 29.6.48, 13.7.48 Rotors 13.7.48 Blading 13.7.48 Gearing 16.7.48  
 Wheel shaft 16.7.48 Condensers 22.6.48 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 Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers Identification Mark BH 55512 7.4.48  
 Rotor shaft, Material and tensile strength *Swiss Steel* 56/58 Tons sq in Identification Mark BH 55513 7.4.48

Flexible Pinion Shaft, Material and tensile strength Identification Mark EB 5946 15.8.48  
 Pinion shaft, Material and tensile strength Identification Mark EB 5947 26.8.48

1st Reduction Wheel Shaft, Material and tensile strength *Steel* 31/34 Tons sq in Identification Mark EB 1024 24.9.47  
 Wheel shaft, Material Identification Mark EB 1025 24.9.47

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks  
 Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test *Set A. 13.9.48. Set B. 7.9.48.* 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..... If so, state name of vessel.....

General Remarks. (State quality of workmanship, opinions as to class, &c.) *These two self contained turbo general sets have been built under Special Survey in accordance with the approved plans and the Requirements of the Rules. Steel forgings & castings used in their manufacture have been made at works approved by the Committee and under the supervision of their surveyors. Full power trials were held & subsequently both machines were opened out for inspection & all parts found to be in good order. The workmanship is good & the sets are in my opinion suitable for inclusion in the vessels L.M.C when satisfactorily installed. Subject to the emergency stop trip valve being fitted on Set B. (Belfast surveyors advised).*

Attached to G.P.S. 47822, 47823, 47850, B.M. 79097 etc.

The amount of Entry Fee	£	:	:	When applied for
Special	62	12/8		19
Donkey Boiler Fee	£	:	:	When received
Travelling Expenses (if any)	£	7	6/6	19

*A. C. Widguy*  
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 22 APR. 1948

Committee's Minute.....  
Assigned *See F. E. Welch. sph.*

