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28 MAY 1951
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IN D.O.

GENERATING

LIVERPOOL

FE Report No. 133852

Report on Steam Turbine Machinery.

No. 122466

Date of writing Report 15 May 1951 When handed in at Local Office 21 May 1951 Port of LONDON.
No. in Survey held at PETERBOROUGH. Date, First Survey 5 Jan 1951 Last Survey 27 April 1951
Reg. Book (Number of Visits 9664) Tons (Gross 12741 Net 7395)

on the President Person
Built at BIRKENHEAD By whom built CAMMELL, LAIRD & CO. Yard No. 1205. When built
Engines made at PETERBOROUGH. By whom made PETER BROTHKHOOD LTD. Engine No. 13288 F. When made 4/51.
Boilers made at By whom made Boiler No. When made
Shaft Horse Power at Full Power (333 SHP) Owners Yacimint Peterborough Yimales Port belonging to Queen Anne
Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes. Is Electric Light fitted.
Trade for which Vessel is intended.

STEAM TURBINE ENGINES, &c.—Description of Engines.

15" - 7840. One Curtis and Six Rateau. Impulse type.
No. of Turbines Ahead ONE Direct coupled, single reduction geared to 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 rated 250 Kilowatts 220 Volts at 1200 revolutions per minute;
for supplying power for driving Auxiliary machinery, Type. Direct Current Generator
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	.62	15.745"	1									
2nd	1.165	16.29"	1									
3rd	1.00	16.125"	1									
4th	1.05	16.175"	1									
5th	1.15	16.275"	1									
6th	1.30	16.425"	1									
7th	2.09	17.25"	1									
8th	2.93	18.805"	1									
9th												
10th												
11th												
12th												

Shaft Horse Power at each turbine H.P. 250 KW. I.P. - L.P. -
Revolutions per minute, at full power, of each Turbine Shaft H.P. 4500 I.P. - L.P. -
1st reduction wheel 1200 main shaft

Rotor Shaft diameter at journals H.P. 2 1/2" I.P. - L.P. -
Pitch Circle Diameter 1st pinion 3.83676" 1st reduction wheel 24.1574" Width of Face 1st reduction wheel 7 1/2"
2nd pinion main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 6 3/4" 1st reduction wheel
2nd pinion main wheel 7 1/2" x 7 1/2"

Flexible Pinion { 1st Pinion Shafts, diameter at bearings External 3" 1st 3.61416
2nd Internal 2nd diameter at bottom of pinion teeth
Wheel Shafts, diameter at bearings { 1st 3 1/2" x 4 1/2" 1st 24.3174 9/16" Generator Shaft, diameter at bearings
main 22" 1/16" Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule
as fitted

Tube Shaft, diameter as per rule Screw Shaft, diameter as per rule Is the { tube } shaft fitted with a continuous liner {
as fitted

Bronze Liners, thickness in way of bushes as per rule Thickness between bushes as per rule Is the after end of the liner made watertight in the
as fitted 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 Moveable 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. 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 Lubricating Oil Pumps, including Spare Pump, No. and size ONE 15 GPM.

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

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

NOTE.—The words which do not apply should be deleted.

IMPA. T.

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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 { an Auxiliary } { }
Is the donkey boiler intended to be used for domestic purposes only.....
Plans. Are approved plans forwarded herewith for Shafting.....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. *1 Armature*, 1 Set General Bearings, 1 Set Cast Iron Brushes & Holders, 1 Set Valve Coils*, 1 Set Intake Coils*, 1 Set Lubricating Bearings, 1 Set of Thrust & Pins, 1 Set of Valve Gear and Spindle, 1 Set of Lubricating Packings, 1 Set of Governor Working Parts, Emergency Valve Gear & Spindle, 1 Set of Oil Catchers, 1 Set of Springs, 1 Pinion Shaft.**

* Depot Spares for 4 ships

For PETER BROTHERHOOD LTD.

S. J. Bellamy
DIRECTOR

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - E 5/1/51 7/2/50 13/4/51 17/4/51. F 12/1/51 27/4/51
During erection on board vessel - - 7 (In shops)
Total No. of visits
Dates of Examination of principal parts—Casings E 5/1/51 17/4/51 F 12/1/51 27/4/51 Rotors E 7/2/50 17/4/51 F 27/4/51 Blading E 17/4/51 F 27/4/51 Gearing E 7/2/50 17/4/51 F 27/4/51
Wheel shaft E 17/4/51 Thrust shaft 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
Rotor shaft, Material and tensile strength *Super Steel E. 48.4 tons F 51.2 tons* Identification Mark *E. 5 5066. WH } 30/6/49. E. 5 5170. WH }*
Flexible Pinion Shaft, Material and tensile strength Identification Mark
Pinion shaft, Material and tensile strength *Super Steel E. 51.2 tons F 48.4 tons* Identification Mark *E. 1610 } EB. 20/6/49 E. 1584 } EB. 2/6/49. E. 1589 }*
1st Reduction Wheel Shaft, Material and tensile strength *Super Steel E. 35.6 tons F. 36.0 tons.* Identification Mark
Wheel shaft, Material Identification Mark Thrust shaft, Material Identification Mark
Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks
Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure
Date of test *Set E. 13/4/51. Set F. 24/4/51.* 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 *Ensign N° 1203.*

General Remarks. (State quality of workmanship, opinions as to class, &c.) *These two steam turbine generating engines have been built under survey in accordance with approved plans and the requirements of the rules. Steel used in the manufacture has been made at works approved by the Committee and under the supervision of the British Surveyors. The workmanship is satisfactory, and the engines are in my opinion capable to be of the in a ship classed with this Society.*

Satisfactory full power running tests & governor trials have been witnessed at the Makers' works with each turbine coupled to its respective dynamo, and approximately 20% overload test was also witnessed, being the maximum possible with water condensing plant. No paralleling trials were carried out on the test bed, as each set was run separately. Engines N° 13288E. Coupled to Sundstrand type dynamo N° 41774 stamped Roper Test 2/8/51. SDB. and Engines N° 13288F. Coupled to Sundstrand type dynamo N° 41773 stamped Roper Test. 2/2/51

The amount of Entry Fee ... £ : : When applied for.
Special ... £ 22 : 5 : 0 21 May 19 51
Donkey Boiler Fee ... £ : : When received.
Travelling Expenses (if any) £ 5 : 5 : 0 19

Committee's Minute

Assigned

Engineer Surveyor to Lloyd's Register of Shipping.

These sets have been properly installed in the vessel & tried under working conditions with satisfactory results.

L. Rots
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