

REPORT ON STEAM TURBINE MACHINERY. No. 105384

Received at London Office **NEWCASTLE-ON-TYNE** JUN 1948

Date of writing Report 19 When handed in at Local Office 19 JUN 1948 Port of NEWCASTLE-ON-TYNE

No. in Survey held at North Shields Date, First Survey 23. 4. 48. Last Survey 11. 6. 1948.

Reg. Book. 24063 on the Turbo-electric "FORT FREDERICA" (Number of Visits 20) Tons } Gross 10672
Net 6822

Built at Portland, Oregon By whom built Kaiser Co. Inc. Yard No. 2401 When built 1945

Engines made at Lynn, Mass. By whom made General Electric Co. Engine No. 70633/4 When made 1945

Boilers made at New York By whom made Combustion Eng. Co. Inc. Boiler Nos. 11989, 11991 When made 1945

Shaft Horse Power at Full Power 6,600 Owners British Tankers Ltd. Port belonging to LONDON

Nom. Horse Power as per Rule 1,485 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

Trade for which Vessel is intended Carrying petroleum products in bulk.

AUXILIARY STEAM TURBINE ENGINES, &c. — Description of Engines Two, single reduction geared impulse turbines.

No. of Turbines Ahead one Direct coupled to propelling shafts. No. of primary pinions to each set of reduction gearing two

Direct coupled to { Alternating Current Generator 3 phase 60 periods per second also two engines - one 75KW + one 50KW, each machine }
Direct Current Generator } rated 400 Kilowatts 450 Volts at 1,200 revolutions per minute;

for supplying power for driving Propelling Motors, Type Direct coupled, single or double reduction geared to propelling shafts.
rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute.

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	<u>1/2"</u>	<u>25 3/4"</u>	<u>1</u>									
2ND	<u>15/16"</u>	<u>26"</u>	<u>1</u>									
3RD	<u>1/2"</u>	<u>25 3/8"</u>	<u>1</u>									
4TH	<u>9/16"</u>	<u>26 1/2"</u>	<u>1</u>									
5TH	<u>5/16"</u>	<u>25 3/4"</u>	<u>1</u>									
6TH	<u>2 1/4"</u>	<u>26 1/8"</u>	<u>1</u>									
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 700. I.P. ✓ L.P. ✓ }
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5,645 I.P. ✓ L.P. ✓ }
1st reduction wheel ✓ main shaft 1,200

Rotor Shaft diameter at journals { H.P. 2 1/2" I.P. ✓ L.P. ✓ }
Pitch Circle Diameter { 1st pinion 5.43" 2nd pinion ✓ }
1st reduction wheel 25.56" main wheel ✓ Width of Face { 1st reduction wheel 8 1/4" main wheel ✓ }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 6 5/8" = 7 1/2" 2nd pinion ✓ }
1st reduction wheel 6 5/8" main wheel ✓

Flexible Pinion Shafts, diameter { 1st ✓ 2nd ✓ }
Pinion Shafts, diameter at bearings External 4" Internal ✓ 1st ✓ 2nd ✓ diameter at bottom of pinion teeth { 1st 5.125" 2nd ✓ }

Wheel Shafts, diameter at bearings { 1st ✓ main ✓ } diameter at wheel shroud, { 1st ✓ main ✓ }
Generator Shaft, diameter at bearings 4" & 5" Propelling Motor Shaft, diameter at bearings ✓

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

Tube 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 ✓

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, 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. Turbine exhaust direct to the Condenser ✓

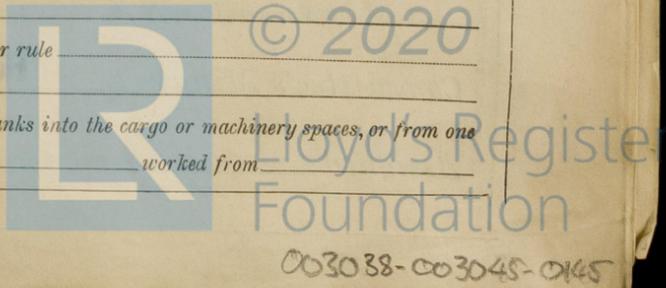
No. of Turbines fitted with astern wheels ✓ Feed Pumps { No. and size ✓ How driven ✓ }

Pumps connected to the Main Bilge Line { No. and size ✓ How driven ✓ }

Ballast Pumps, No. and size ✓ Lubricating Oil Pumps, including S₁ are Pump, No. and size ✓
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 ✓
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 ✓



BOILERS, &c.—(Letter for report) 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 Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building (During progress of work in shops, During erection on board vessel, Total No. of visits)

Dates of Examination of principal parts - Casings, Rotors, Blading, Gearing, Wheel shaft, 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 fired, Engines tried under steam, Main boiler safety valves adjusted, Thickness of adjusting washers

Rotor shaft, Material and tensile strength Identification Mark

Flexible Pinion Shaft, Material and tensile strength Identification Mark

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 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 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 T2 Tankers.

General Remarks (State quality of workmanship, opinions as to class, &c.) These machines have been constructed under the supervision of the U.S. Coast Guard & the American Bureau of Shipping. The workmanship is good and the materials considered sound. The machines have been examined under working conditions and found satisfactory.

Table with columns for Fee Type (Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses), Amount (£), and When applied for/When received.

W. Allan Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 23 JUL 1948 Assigned See minute on Rpt. 9