

## REPORT ON STEAM TURBINE MACHINERY. No. 105384

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 No. 11989/1

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.

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines

Two, single reduction geared impulse turbines.

No. of Turbines

Ahead 2

Astern 1

Direct coupled to

Alternating Current Generator 3 phase 60 periods per second

Direct Current Generator

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.

TURBINE BLADING.		UNDER HEIGHT OF BLADES.	H.P. SHROUD. DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	I.P. DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	L.P. DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	ASTERN. DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	.....	1/2"	25 3/4"	1									
2ND	"	15/16"	26"	1									
3RD	"	1/2"	25 5/8"	1									
4TH	"	9/16"	26 1/2"	1									
5TH	"	1 3/16"	25 3/4"	1									
6TH	"	2 1/4"	26 7/8"	1									
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" 1st reduction wheel 25.56" 2nd pinion " 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 " main wheel " }

Flexible Pinion Shafts, diameter { 1st " 2nd " }  
Pinion Shafts, diameter at bearings { External 1st " 2nd " 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 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 S<sub>1</sub> 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

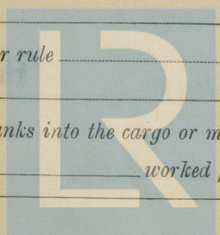
In Holds, &c.

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

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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.

The amount of Entry Fee	£	:	:	When applied for,
Special	£	:	:	19.
Donkey Boiler Fee	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	19.

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

Committee's Minute FRI. 23 JUL 1948

Assigned See minute on Rpt. 9



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