

Report on Steam Turbine Machinery.

No. 127547

Received at London Office

15 SEP 1948

pt. 4a.

Date of writing Report 1-9-1948 When handed in at Local Office 19 Port of LIVERPOOL
 No. in Survey held at BIRKENHEAD Date, First Survey 19 Last Survey 19
 Reg. Book 77732 on the TOMOCYCLUS Tons {Gross 10668 Net 6321
 Built at PORTLAND, OR. By whom built KAISER CO., LTD. Yard No. When built 1944
 Engines made at LYNN, MASS. By whom made GENERAL ELECTRIC CO. Engine No. When made 1944
 Boilers made at By whom made COMBUSTION ENGINEERING CO. Boiler No. When made 1944
 Shaft Horse Power at Full Power 6000 Owners ANGLO-SAXON PETROLEUM CO. LTD. Port belonging to LONDON
 Nom. Horse Power as per Rule M.N. 1486 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES
 Trade for which Vessel is intended

TEAM TURBINE ENGINES, &c.—Description of Engines One 10 Stage Curtis Impulse Turbine

No. of Turbines Ahead 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 3 phase 62 periods per second } rated 5400 Kilowatts 2370 Volts at 3715 revolutions per minute;
 Direct Current Generator }
 for supplying power for driving One Propelling Motor, Type Synchronous TSM 80
 rated 6000 B.H.P. 2300 Volts at 90 revolutions per minute. Direct coupled, single or double reduction geared to One propelling shafts.

	H. P.			I. P.			L. P.			ASTERN.		
TURBINE 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 1/2 - 2 1/8		2									
2nd "	1 1/2		1									
3rd "	1 3/4		1									
4th "	2 1/8		1									
5th "	1 1/2		1									
6th "	1 7/8		1									
7th "	2 5/8		1									
8th "	3 7/8		1									
9th "	5 3/4		1									
10th "	9 3/4		1									
11th "												
12th "												

Shaft Horse Power at each turbine { H.P. ✓ I.P. ✓ L.P. ✓ } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 3715 ✓ I.P. ✓ L.P. ✓ } 1st reduction wheel ✓ main shaft 90 ✓

Rotor Shaft diameter at journals { H.P. 5" AFT ✓ I.P. 10" FORA ✓ L.P. ✓ } Pitch Circle Diameter { 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 ✓ }

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

Wheel Shafts, diameter at bearings { 1st ✓ main ✓ } diameter at wheel shroud, { 1st ✓ main ✓ } Generator Shaft, diameter at bearings 5.507" ✓ Propelling Motor Shaft, diameter at bearings 17.25" ✓

Intermediate Shafts, diameter { as per rule 16.56" ✓ as fitted 16 7/8" ✓ } Thrust Shaft, diameter at collars { as per rule 17.39" ✓ as fitted 17.5" ✓ }

Tube Shaft, diameter { as per rule 18.185" ✓ as fitted 18 9/16" ✓ } Is the { tube screw } shaft fitted with a continuous liner { yes ✓ }

Bronze Liners, thickness in way of bushes { as per rule .858" ✓ as fitted 1.125" ✓ } Thickness between bushes { as per rule .643" ✓ as fitted 1.000" ✓ } Is the after end of the liner made watertight in the propeller boss. yes ✓ 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. No ✓ If so, state type. Length of Bearing in Stern Bush next to and supporting propeller 7'-3" ✓

Propeller, diameter 19'-6" Pitch 17'-6" No. of Bades 4 State whether Moveable No Total Developed Surface 138.3 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 None Feed Pumps { No. and size 2 Centrifugal 200 G.P.M. - 1 Simplex 130 G.P.M. How driven Turbine Steam cylinders

Pumps connected to the Main Bilge Line { No. and size 2 175 G.P.M. - 1 Buttrworth + Ballast 450 G.P.M. - 1 Buttrworth + Fire 450 G.P.M. How driven Motor Motor Motor } Lubricating Oil Pumps, including Spare Pump, No. and size 2 Rotary - 60 G.P.M.

Ballast Pumps, No. and size 1 300 G.P.M. (ford pump room) Oil Cooler yes ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary Are two independent means arranged for circulating water through the Oil Cooler. yes ✓ In Pump Room.

Bilge Pumps, No. and size:—In Engine and Boiler Room 8 at 3", 2 at 3 1/2", 2 at 4" In Holds, &c. Boatwains Store + Ammunition Locker 3 1/2" Ejectors, Chain Locker 2" Ejectors. Main Water Circulating Pump Direct Bilge Suctions, No. and size One at 18" ✓ Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 2 at 4" ✓ 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. No inlet boxes ✓ Are they fitted with Valves or Cocks. all Valves ✓ 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 line. below ✓ Are the Blow Off Cocks fitted with a spigot and brass covering plate. No ✓ What pipes pass through the bunkers. None ✓ How are they protected. ✓

What pipes pass through the deep tanks. None ✓ Have they been tested as per rule. yes ✓ Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times. yes ✓

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. yes ✓ Is the Shaft Tunnel watertight. yes ✓ Is it fitted with a watertight door. yes ✓ worked from Main Level.

BOILERS, &c.—(Letter for record 5) Total Heating Surface of Boilers 11354 sq
Is Forced Draft fitted yes No. and Description of Boilers 2 W.T.B. Working Pressure 500 lbs
Is a Report on Main Boilers now forwarded? yes
Is a Donkey Boiler fitted? No If so, is a report now forwarded? yes
an Auxiliary
Is the donkey boiler intended to be used for domestic purposes only? No
Plans. Are approved plans forwarded herewith for Shafting No Main Boilers No Auxiliary Boilers No Donkey Boilers No
(If not, state date of approval)
Superheaters No General Pumping Arrangements No Oil Fuel Burning Arrangements No

SPARE GEAR.

Has the spare gear required by the Rules been supplied yes, except a spare propeller which is now on order.
State the principal additional spare gear supplied.

The foregoing is a correct description,

Manufacture

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 fixed 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

General Remarks. (State quality of workmanship, opinions as to class, &c.) This report is submitted for the information of the committee.

Certificate (if required) to be sent to
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

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

Committee's Minute

Assigned

James H. Smyth
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation