

## Report on Steam Turbine Machinery. No. 10862

Received at London Office 20 AUG 1948

Date of writing Report 19-8-1948 When handed in at Local Office 19-8-1948 Port of Falmouth

No. in Survey held at Falmouth Date, First Survey 21-5-48 Last Survey 6-7-1948

eg. Book 58403 (Number of Visits 9)

3549 on the S.S. ESSO BIRMINGHAM Tons {Gross 10727 Net 6324}

uilt at Chester, Pa. By whom built San S.B. & Dry Dock Co. Yard No. When built 1943

Engines made at Dynn, Mass. By whom made General Electric Co. Engine No. 72130 When made 1943

Boilers made at By whom made Babcock & Wilcox, Ltd. Boiler No. When made 1943

Shaft Horse Power at Full Power 6000 Owners Anglo-American Oil Co. Ltd. Port belonging to London

nom. Horse Power as per Rule MN=1500 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes

Grade for which Vessel is intended Carrying Petroleum in Bulk

STEAM TURBINE ENGINES, &c.—Description of Engines One Curtis Impulse 10 Stage turbine

No. of Turbines One Ahead One Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing one

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 3 PHASE, 62 CYCLE, 80 POLE, REVOLVING FIELD, SALIENT POLE, SYNCHRONOUS

rated 2300 Kilowatts 2300 Volts at 90 revolutions per minute. Direct coupled, single or double reduction geared to one propelling shaft.

RBINE		H. P.			I. P.			L. P.			ASTERN.		
ADING.		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				2									
2nd				1									
3rd				1									
4th				1									
5th				1									
6th				1									
7th				1									
8th				1									
9th				1									
10th				1									
11th				1									
12th				1									

Shaft Horse Power at each turbine H.P. 5400 I.P. 2370 L.P. 2300 Revolutions per minute, at full power, of each Turbine Shaft H.P. 3715 I.P. 90 L.P. 90

Motor Shaft diameter at journals H.P. 5" x 10" I.P. 5" x 10" L.P. 5" x 10" 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 17.268"

Intermediate Shafts, diameter as per rule 16.56" as fitted 16.75" Thrust Shaft, diameter at collars as per rule 17.39" as fitted 17.5"

Screw Shaft, diameter as per rule 18.185" as fitted 18.5" Is the screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per rule 8.58" as fitted 1.8" Thickness between bushes as per rule 6.43" as fitted 1" 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 ✓ 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 ✓

propeller, diameter 19'-6" Pitch 14'-6" No. of Blades 4 State whether Moveable No. Total Developed Surface 138.3 square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine One Turbine Only 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 Centrif. 200 G.P.M. 1 Simplex 10" x 7" x 24" How driven Turbine Steam Cylinder

Pumps connected to the Main Bilge Line { No. and size 2-175 G.P.M. 1 Butterworth Ballast-450 G.P.M. 1 Butterworth Fire-450 G.P.M. How driven Motor Motor Motor

Ballast Pumps, No. and size 1 Motor Driven-450 G.P.M. in Eng. Room Lubricating Oil Pumps, including Spare Pump, No. and size 2-Vert. Rotary 60 G.P.M.

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary

Bilge Pumps, No. and size:—In Engine and Boiler Room 8 @ 4" 2 @ 3 1/2" In Pump Room 23" P.S. in Pump Room 23" P.S. in Stairs

Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size One @ 18" Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 2 @ 4" 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 Checks or Spool Pieces Are they fitted with Valves or Cocks 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 they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes 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 ✓

That pipes pass through the deep tanks None 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 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 Floor Level



BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *11552* *ft* (*L'pool Rept*)  
Is Forced Draft fitted *Yes* No. and Description of Boilers *2 W.T.B* Working Pressure *500 LBS/0"*  
Is a Report on Main Boilers now forwarded? *No. See L'pool Rept 125861*  
Is *a Donkey* Boiler fitted? *No* 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 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, except spare propeller which has been ordered*  
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 - - *A.B. Survey*  
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 *Yes*  
Is the flash point of the oil to be used over 150°F *Yes* Have the requirements of the Rules for the use of oil as fuel been complied with *Yes*  
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 *T.2 Type Tanker*

General Remarks. (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel was constructed under the Special Survey & to the requirements of the American Bureau of Shipping & the materials & workmanship are considered satisfactory. The scantlings & general arrangements have been checked as far as possible & found to conform to the plans aboard the vessel. For recommendations as to class, please see Report 9*

The amount of Entry Fee ... £ *48* : - : When applied for.  
Special ... £ : : : 19  
Donkey Boiler Fee ... £ : : : When received.  
Travelling Expenses (if any) £ : : : 19

*Geo. Stevenson*  
Engineer Surveyor to Lloyd's Register of Shipping.



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