

# REPORT ON STEAM TURBINE MACHINERY. No. 17177

Received at London Office  
 Writing Report 18th Dec. 1948 When handed in at Local Office 21st Dec. 1948 Port of BRISTOL

Survey held at Avonmouth Date, First Survey 6th October Last Survey 18th December 1948  
 (Number of Visits 6)

On the steel screw T2 tanker "ESSO MANCHESTER" (Turbo Electric) Tons } Gross 10712  
 Net 6301

at Chester, Pa By whom built Sun S.B and Drydock Co. Yard No. - When built 1944

Engines made at Lynn, Mass By whom made General Electric Co. Engine No. - When made 1944

Boilers made at Barbeton, Ohio By whom made Babcock and Wilcox Boiler No. - When made 1944

Horse Power at Full Power 6000 Owners Esso Transportation Port belonging to London

Horse Power as per Rule 1361 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

for which Vessel is intended Carrying Petroleum in bulk

**M TURBINE ENGINES, & C.** — Description of Engines One Curtis Impulse 10 Stage Turbine

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 }

Alternating Current Generator 3 phase 62 periods per second } rated 5400 Kilowatts 2370 Volts at 3715 revolutions per minute;  
 Direct Current Generator }

Driving power for driving One Propelling Motor Type 3 Phase, 62 Cycle, 80 Pole, Revolving Field, Salient Pole,  
000BHP Kilowatts 2300 Volts at 90 revolutions per minute. Direct coupled, single reduction geared to one propelling shaft Synchronous

LINE	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.
ANSION	<u>3</u>	<u>34</u>										
"	<u>1</u>	<u>34</u>										
"	<u>1 1/2</u>	<u>34 1/2</u>										
"	<u>1 1/2</u>	<u>35 1/2</u>										
"	<u>3</u>	<u>42 1/2</u>										
"	<u>1 1/2</u>	<u>43 1/2</u>										
"	<u>2 1/2</u>	<u>45 1/2</u>										
"	<u>2 1/2</u>	<u>47</u>										
"	<u>5 1/2</u>	<u>49 1/2</u>										
"	<u>9</u>	<u>56</u>										

Horse Power at each turbine } H.P. 3715 ✓  
 I.P. - } 1st reduction wheel  
 L.P. - } main shaft 90 ✓

Shaft diameter at journals } H.P. 5" and 10"  
 I.P. - } Pitch Circle Diameter  
 L.P. - } 1st pinion - 1st reduction wheel  
 2nd pinion - 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

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

Shafts, diameter at bearings } 1st - Generator Shaft, diameter at bearings 10"  
 main - diameter at wheel shroud, } main - Propelling Motor Shaft, diameter at bearings 17 1/2" ✓

Intermediate Shafts, diameter } as per rule 16 1/2"  
 as fitted 16 1/2" ✓ } Thrust Shaft, diameter at collars } as per rule 17.325"  
 as fitted 17 1/2" ✓

Shaft, diameter } as per rule -  
 as fitted - } Screw Shaft, diameter } as per rule 18 1/2"  
 as fitted 18 1/2" ✓ } Is the YUKK screw } shaft fitted with a continuous liner } yes ✓

Liners, thickness in way of bushes } as per rule .85  
 as fitted 1 1/4 } Thickness between bushes } as per rule .65"  
 as fitted 1" } Is the after end of the liner made watertight in the } yes ✓

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 -  
 Bearings 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 -  
 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 Blades 4 State whether Moveable no Total Developed Surface 138.3 square feet.  
 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. Turbine exhaust direct to the -

No. of Turbines fitted with astern wheels none Feed Pumps } No. and size 1-6 Stage Ingersol Rand, 1-single Stage Coffin  
 How driven 200 GPM Turbine } 200 GPM Turbine

Connected to the Main Bilge Line } No. and size 2 - Bilge at 175 GPM 1 GS at 450 GPM (1 Simplex 10 x 7 x 24 Steam  
 How driven Electric Motor } Electric Motor Ford P.R. 1-Duplex 10"x7"x10"

Pumps, No. and size 1-10x7x24 Duplex Lubricating Oil Pumps, including Spare Pump, No. and size 2-Vert. Rotary 60 GPM  
 dependent means arranged for circulating water through the Oil Cooler yes ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 No. and size: — In Engine and Boiler Room Blr. Flat & Thrust Recess 6-2 1/2" dia. Lower ER. 10-3" after well 2-3 1/2"  
Bsn. Store 2-1" Ejectrs. Chain Locker 2" Ejectr. Aft. Pump R. 3-2 1/2" suct. Ford P.R 2-2 1/2" Dry Store 2-2 1/2"

Water Circulating Pump Direct Bilge Suctions, No. and size 1-18" Diam Independent Power Pump Direct Suctions to the Engine Room  
 No. and size 2 at 4" ✓ Are all the Bilge Suction pipes in Stem Tube Tunnel Well fitted with strum-boxes yes ✓  
 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 ✓  
 Connections fitted direct on the skin of the ship To Chests or Spool Pieces Are they fitted with Valves or Cocks Valves  
 Located 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 ✓  
 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  
 Do they pass through the bunkers none ✓ How are they protected -  
 Do they pass through the deep tanks none ✓ Have they been tested as per rule -  
 Are valves, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes ✓  
 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  
 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 sq.ft. (2 boilers 9868 - 2 Sp

Is Forced Draft fitted Yes No. and Description of Boilers 2WTB single pass Str. Tube Working Pressure 500

Is a Report on Main Boilers now forwarded? Yes

Is (a Donkey / an Auxillary) Boiler fitted? No If so, is a report now forwarded?

Is the Donkey boiler intended to be used for domestic purposes only? No

Plans. Are approved plans forwarded herewith for Shafting Yes Main Boilers Yes Auxiliary Boilers Yes Donkey Boilers Yes  
(If not state date of approval) American Bureau only available plans on board.

Superheaters No General Pumping Arrangements No Oil Fuel Burning Arrangements No

Has the spare gear required by the Rules been supplied Yes, except as stated below. **SPARE GEAR.**

State the principal additional spare gear supplied Spare gear, where applicable, as per Rule requirements, is on

except spare propeller and impeller shaft for main circulating pump. A number of spare prop

impeller shafts and impellers for circulating pumps and a quantity of other items of spare ge

kept by Owners at stores in various ports in the U.K. to suit a number of similar type vessel

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - American Bureau Survey  
During erection on board vessel - - ditto  
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. 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. Yes If so, have the requirements of the Rules been complied with Yes

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with Yes

Is this machinery a duplicate of a previous case. Yes If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery of this vessel was constructed

under the special survey and to the requirements of the American Bureau of Shipping and U.S.

Guards and the materials and workmanship are now considered satisfactory.

The scantlings and general arrangements have been checked as far as practicable and found to

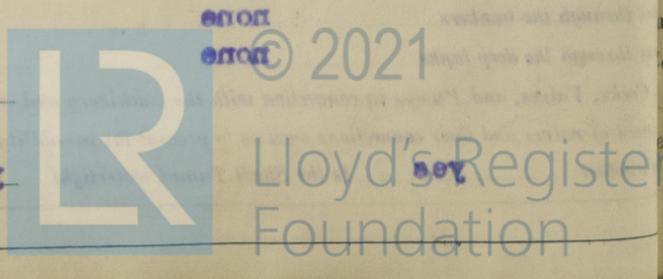
to available plans, copies of which are on board the vessel.

For recommendations to class, please see Bristol report 9 attached, No. 1-18" Dam

The amount of Entry Fee ... £ : : } When applied for, 19  
Special ... £ : : }  
Donkey Boiler Fee ... £ 155 : : }  
Travelling Expenses (if any) £ : : } When received, 19

Committee's Minute 4 FEB 1948

Assigned W. L. 12.48



Certificate (if required) to be sent to ...