

No. 117600

## REPORT ON ELECTRIC PROPELLING MACHINERY.

Received at London Office

of writing Report 4 Jan 1949 When handed in at Local Office 6 Jan 1949 Port of Bristol  
 in Survey held at — Date, First Survey — 19 — Last Survey 13 October 1948  
 Book. No. of Visits 1  
 Single 51 on Twin — Triple — Quadruple — Screw vessel "ESSO MANCHESTER" Gross 10712 Tons  
Chester Pa. By whom built San S. B. Dry Dock Co Yard No. — When built 1944  
 Electrical Machines made at Schenectady By whom made Gen. Elec. Co. Generator Nos. — When made 1944  
 Motor Nos. —  
 Horse Power at Full Power 6000/6600 Total Capacity of Generators 4925/5400 kilowatts  
 Machinery Numeral as per Rule 1485 Owners Anglo American Oil Co Ltd Port belonging to London  
 for which Vessel is intended carrying Petroleum in bulk

S. Have plans of the Machines, Control Gear, Cables and Circuits been submitted and approved Typical plans of T2 Tankers approved.

M ENGINES.— Type of Engine Steam Turbine No. of Engines one R.P.M. 3600/3715 Is a Governor fitted Yes Is the speed variation as per Rule when load is thrown off ✓ Is an Emergency Governor fitted Yes Is it arranged for hand tripping Yes Does it trip the throttle ✓ If exhaust steam is admitted, is an automatic shut-off fitted ✓ Is provision made for bleed steam No and is a non-return or positive off valve fitted ✓ Lubricating Oil.—State means provided for emergency supply Gravity Tank. Is emergency reserve sufficient to maintain lubrication as per Rule Yes Mechanical Balance.—Are the Engines and Generators balanced so as not to use appreciable vibration Yes

ENGINES.— Type of Engines — R.P.M. — Is a Governor fitted — Is the speed variation as per Rule when load is thrown off — Is an Emergency Governor fitted — Does it operate as per Rule —

GENERATORS.— Direct or Alternating Current A.C. No. of Generators one If A.C. state frequency at full load 60/62 cycles Volts per Generator 4925/5400 Volts per Generator 2300/2370 Amps. per Generator 1237/1315 Have certificates of works tests been supplied No and the results found as per Rule ✓ Ventilation.—State how arranged (open or closed system) Closed system Are ventilating arrangements satisfactory Yes Heating when Idle.—What provision is made Electric Heaters Facilities for Inspection and Repair.—Are these as per Rule Yes

Wear-down gauges supplied No Bilges.—Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory Yes MOTORS.— S.H.P. per Motor at full power 6000/6600 No. of Motors One Single or double unit single Volts per Motor 2300/2370 Amps. per Motor 1160 Have certificates of works tests been supplied No and the results found as per Rule ✓ A.C. Motors.—Is provision made for lining the slip rings No Do the Motors remain in synchronism under all normal conditions of running Yes D.C. Motors.—If the system permits speeding at light loads are overspeed protection devices fitted ✓

EXCITATION.— Is power for excitation taken from the ship's Auxiliary Generators See below If so, state voltage 110 and excitation amperes at full Gen: 145 kilowatts for excitation 75 State excitation arrangements for Propulsion Generators Excitation for both propulsion motor generators provided by a 75 KW exciter driven by auxiliary turbo set which consists of 400 KW alt., 75 KW D.C. generator and 55 KW D.C. generator Is an alternative means of excitation provided Yes - Two Aux. D.C. exciters. certificates of works tests been supplied No and found as per Rule ✓

CONTROL.— Position of Main Control Panel In main engine room at starting platform. Does it comply with the requirements regarding position Yes, grouping of controls Yes, instruments Yes, insulating materials (state type Dead front board. spacing and shielding of live parts Yes, accessibility Yes, position of fuses Yes, use of screws and nuts Yes, labelling Yes, fuses for voltmeters, pilot lamps, etc. Yes, provision for manual operation of contractors, etc. (state method employed) Contractors manually operated by levers, interlocked against incorrect operation.

Protection of instrument cases above 250 volts to earth Yes, provision of renewable tips on switches subject to arcing Yes, capability of withstanding and inclination Yes, operation with high and low voltage Yes, rust proofing of parts Yes Overload and Short Circuit Protection.—State means used Phase balance relay for protection against phase faults resulting from short circuit between phases or open circuit in one phase. Fault trips excitation breaker. Is it set to operate 25% of full load current Has it been tripped by hand when running at full power and found satisfactory Not tested Are fuses of an approved type All fuses are American Standard Cartridge type.

DETECTION.— Is the main circuit provided with means for detecting earths Yes Are aural and visual alarms fitted Visual Is main power interrupted on earth fault Yes If a limiting resistance is in the earth detecting circuit what is the ohmic value 67 ohms What earth leakage current is necessary to operate the device min. 0.5 A max. 2.5 A If a switch is used to disconnect the aural signal does it automatically give visual indication ✓ Are the detection circuits provided with means for earth detection Yes Mechanical Protection.—Are circuits above 250 volts to earth protected as per Rule Yes

BRIDGE OR DECK CONTROL.— Is bridge control provided No If so, from how many stations — can it be operated freely without producing surges or loads in excess of the working capacity of the plant — and without reference to electrical instruments — Is an emergency control provided in the engine room — and can the transfer to this control be made quickly in the engine room — Can the emergency control be rendered mechanically independent of the deck control — Instruments and Gauges.—State Instruments provided for each Generator Temp. indicator (Stator & Field)

for each Motor Temp. indicator, Field and line Volts & Amperes; Rev. Indicator; Stator P. ind. Is an Insulation Tester provided Yes

OVERLOAD PROTECTION.— Are all shunt field circuits protected as per Rule Yes D.C. Systems.— If the Generators are connected in series state means used to prevent reversal of direction of rotation of the Prime Movers —

Are Propulsion Generators also used alternatively for other purposes Yes - for driving cargo and stripping pump motors through transformers If so, is provision made for overload protection, voltage adjustment, etc. Yes

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Reversing Switches.—If any are provided are they interlocked as per Rule *Yes* Resistances.—Are resistances for synchronous motor fields insulated as per Rule *Yes* Temperature Alarm.—Are machines with enclosed ventilating system, etc., fitted with temperature alarm *No indicators on*

CONDUCTORS & CABLES.—Are all essential Conductors stranded as per Rule *Yes* Are the ends of Paper and Varnished Cambric Insulated sealed *Yes* Are all Cables carrying A.C. constructed and installed as per Rule *Yes* Have all Cables been tested at the makers' works *—*

SECONDARY BATTERIES.—Are Batteries used for starting Main Propulsion Engines *No* If so, have full particulars of rating been submitted and approved *—* Have they been tested under working conditions and do they give the required number of starts *—* Are they in as per Rule *—* Are the charging arrangements satisfactory *—*

SPARE GEAR.—If engaged on open sea service has a list of spare gear been submitted and approved *No* Is a list of the articles supplied attached to this report *No* Are they stored as per Rule *Adequate spare gear for fleet stated by Owners representative to be held in stock at various ports in the U.K.*

### ELECTRIC PROPULSION EQUIPMENT CONDUCTORS.

DESCRIPTION	CONDUCTORS.		TOTAL MAXIMUM CURRENT—AMPERES.*		By Comp. Rule.	MAXIMUM VOLTAGE TO EARTH.	INSULATED WITH.	DI-ELECTRIC THICKNESS.	HOW PROTECTED.
	No. per Pole.	CIRC. MILS. Nominal Area per Pole.	In Circuit. When Running.	When Manoeuvring.					
MAIN GENERATORS	2	1,500,000	1315	—	2190	2300	V.C.	—	Lined & banded
GENERATOR FIELDS	1	500,000	165 at 3715 R.P.M.	—	454	110	V.C.	—	" Bronze
MAIN MOTORS	2	1,500,000	1160	—	2190	2300	V.C.	—	" " "
MOTOR FIELDS	1	500,000	normal 400 max 420	—	454	110	V.C.	—	" " "
CONTROL CIRCUITS									
OTHER CIRCUITS:—									

\*For field circuits the "Hot" and "Cold" value should be given.

The foregoing is a correct description,

Electrical Engineers.

Date

COMPASSES.—Are Single-Conductor circuits carrying direct current arranged with lead and return Conductors fitted as close to one another as possible

Have tests been made during adjustment of the Compasses to determine the effect of switching the main circuits on and off

Builders' Signature.

Date

Is this machinery duplicate of a previous case *Generally similar to other T2 Tankers.* If so, state name of vessel *"EL MORRO"*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Electric Propulsion Equipment of this vessel appears to be installed in accordance with American practice and typical of T2 Tankers. The details of this report were obtained from these plans and from personal observation.

A new alternator rotor has been installed and the rotor tested for balance at all speeds both unexcited and excited and found satisfactory. Rotor Serial No SER819746.SPFC.3209055 A.B.43

A sheet iron cover has been fitted over the cable wound at the alternator stator and the propulsion equipment generally overhauled and tested under working conditions and found satisfactory.

The Equipment appears in efficient condition and while not strictly in accordance with the Society's Rules, it is in my opinion eligible for classification.

See Report 9.

The amount of Entry Fee ... £ 11 : 6 : —

Travelling Expenses (if any) £ 4 : 5 : 11

To be collected on

When applied for,

19

When received,

19

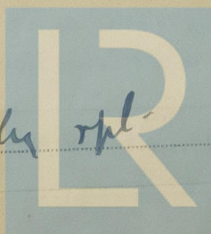
Date

Committee's Minute

See minute on fe machy rpt

J.H. Tinkell

Surveyor to Lloyd's Register of Shipping



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