

# REPORT ON ELECTRIC PROPELLING MACHINERY

27 JUL 1949

Received at London Office

Date of writing Report 25<sup>th</sup> JUNE 1949 When handed in at Local Office 25 JUN 1949 Port of NEWCASTLE-ON-TYNE

No. in Survey held at WALSSEND-ON-TYNE Date, First Survey 28/4/49 19 19 Last Survey 21/6/49 19 19  
No. of Visits 12

Single on Twin Triple Quadruple Screw vessel "ESSO BIRMINGHAM" Tons (Gross 10727 Net 6324)

built at CHESTER, PA. By whom built SUN S.B. & DRY DOCK CO. Yard No. - When built 1943

Electrical Machines made at LYNN, MASS. By whom made GENERAL ELECTRIC CO. Generator No. 5940720 When made 1943  
Motor No. 6037927

Shaft Horse Power at Full Power 6000 @ 90RPM Total Capacity of Generators 5400 kilowatts

Machinery Numeral as per Rule - Owners ANGLO AMERICAN OIL CO. LTD. Port belonging to LONDON

Trade for which Vessel is intended CARRYING PETROLEUM IN BULK.

ANS.— Have plans of the Machines, Control Gear, Cables and Circuits been submitted and approved No.

STEAM 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 YES Is an Emergency Governor fitted YES Is it arranged for hand tripping YES Does it trip the throttle valve YES If exhaust steam is admitted, is an automatic shut-off fitted - Is provision made for bled steam - and is a non-return or positive shut-off valve fitted YES Lubricating Oil.— State means provided for emergency supply STEAM STANDBY LUB. OIL PUMP AND GRAVITY TANK. Is the emergency reserve sufficient to maintain lubrication as per Rule YES Mechanical Balance.— Are the Engines and Generators balanced so as not to cause appreciable vibration YES

DIESEL 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 Volts per Generator 5400 Volts per Generator 2300/2730 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 Are ventilating arrangements satisfactory YES Heating when Idle.— What provision is made RESISTANCE HEATERS Facilities for Inspection and Repair.— Are these as per Rule YES Are 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 No. of Motors ONE Single or double unit SINGLE Volts per Motor 2300 Amps. per Motor 1150 Have certificates of works tests been supplied No and the results found as per Rule - A.C. Motors.— Is provision made for machining the slip rings Φ Do the Motors remain in synchronism under all normal conditions of running YES D.C. Motors.— If the system permits overspeeding at light loads are overspeed protection devices fitted -

EXCITATION.— Is power for excitation taken from the ship's Auxiliary Generators YES If so, state voltage 120 and excitation amperes at full power 682 kilowatts for excitation 75 State excitation arrangements for Propulsion Generators EXCITER WITH AMPIDYNE CONTROL, DRIVEN BY AUX. ALTERNATOR TURBINE, ALTERNATIVELY MANUAL CONTROL OF EXCITATION.

Excitation for Propelling Motors SAME AS ALTERNATOR. Is an alternative means of excitation provided YES Have certificates of works tests been supplied No and found as per Rule -

CONTROL.— Position of Main Control Panel FORWARD END OF CONTROL PLATFORM. Does it comply with the requirements regarding position YES, grouping of controls YES, instruments YES, insulating materials (state type) FLAT FRONTED BOARD, spacing and shielding of live parts YES, accessibility YES, position of fuses YES, locking of screws and nuts YES, labelling YES, fuses for voltmeters, pilot lamps, etc. YES, provision for manual operation of contractors, etc. (state method employed) MECHANICALLY OPERATED BY LEVER AND CAM.

Is anything of instrument cases above 250 volts to earth YES, provision of renewable tips on switches subject to arcing YES, capability of withstanding shock and inclination YES, operation with high and low voltage YES, rust proofing of parts YES Overload and Short Circuit Protection.— State means provided OVERLOAD CURRENT COILS WHICH TRIP EXCITATION.

At what load is it set to operate 50% O.L. Has it been tripped by hand when running at full power and found satisfactory YES Are fuses of an approved type AMERICAN PATTERN.

Earth Detection.— Is the main circuit provided with means for detecting earths YES Are aural and visual alarms fitted YES Is main power interrupted on an earth fault YES If a limiting resistance is in the earth detecting circuit what is the ohmic value CURRENT TRANSFORMER. What earth leakage current is necessary to operate the device Φ If a switch is used to disconnect the aural signal does it automatically give visual indication YES Are the indication circuits provided with means for earth detection YES Mechanical Protection.— Are circuits above 250 volts to earth protected as per Rule YES

Emergency or Deck Control.— Is bridge control provided No If so, from how many stations - can it be operated freely without producing currents 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 WATTHOUR METER - ONE A.C. AMMETER - ONE VOLTMETER - ONE D.C. FIELD AMMETER - ONE R.P.M. TURBINE SPEED METER - ONE D.C. VOLTMETER MOTOR AND GENERATOR FIELDS.

For each Motor ONE A.C. AMMETER - ONE H.P. METER - ONE D.C. FIELD AMMETER - ONE SHAFT REV. INDICATOR. Is an Insulation Tester provided YES

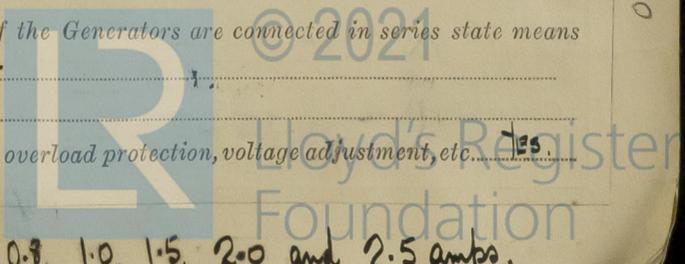
Reverse Charge Protection.— Are all shunt field circuits protected as per Rule YES D.C. Systems.— If the Generators are connected in series state means provided to prevent reversal of direction of rotation of the Prime Movers -

Are the Propulsion Generators also used alternatively for other purposes YES If so, is provision made for overload protection, voltage adjustment, etc. YES

Φ - No Tools Supplied.

Φ 7 TAPPINGS ON TRANSFORMER VALUES 0.5, 0.6, 0.8, 1.0, 1.5, 2.0 and 2.5 amps.

00334-00354-0048



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

CONDUCTORS & CABLES.—Are all essential Conductors stranded as per Rule YES Are the ends of Paper and Varnished Cambria 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 accordance with 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 YES

SPARE GEAR APPROVED BY AMERICAN BUREAU OF SHIPPING

ELECTRIC PROPULSION EQUIPMENT CONDUCTORS.

DESCRIPTION	CONDUCTORS.		TOTAL MAXIMUM CURRENT—AMPERES.*		A.I.E.E. Rule RATING.	MAXIMUM VOLTAGE TO EARTH.	INSULATED WITH.	DI-ELECTRIC THICKNESS.	HOW PROTECTED
	No. per Pole.	Nominal Area per Pole.	In Circuit.						
			When Running.	When Manoeuvring.					
MAIN GENERATORS	2	2x1.1781	1200	—	2x 890	2300	v.c.	0.156	ARMoured & BRAIDED
GENERATOR FIELDS	1	0.392.	—	—	444	660	v.c.	0.094.	ARMoured & BRAIDED
MAIN MOTORS	2	2x1.1781	1200	—	2x 890	2300	v.c.	0.156	ARMoured & BRAIDED
MOTOR FIELDS	1	0.392.	—	—	444.	660.	v.c.	0.094.	ARMoured & BRAIDED
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 YES If so, state name of vessel "ESSO GLASGOW"

General Remarks (State quality of workmanship, opinions as to class, &c.) THE ELECTRICAL INSTALLATION TO THE STANDARDS OF THE AMERICAN BUREAU OF SHIPPING HAS BEEN IN OPERATION FOR APPROXIMATELY SIX YEARS. THE PROPULSION ALTERNATOR AND MOTOR WERE OPENED UP FOR INSPECTION, MOTOR SHAFT WEDGES FOUND SLACK - WEDGES RENEWED AND A HIGH POTENTIAL TEST OF 3000 VOLTS APPLIED FOR TWO MINUTES WITH SATISFACTORY RESULTS, PROPULSION ALTERNATOR CLEANED IN WAY OF SLIPRINGS AND SHAFT WHERE A DEPOSIT OF CARBON AND OIL HAD COLLECTED. ON COMPLETION THE INSULATION RESISTANCE WAS FOUND TO BE SATISFACTORY.

THE MATERIALS USED AND THE WORKMANSHIP ARE SATISFACTORY.

IN MY OPINION THE ELECTRICAL PROPULSION EQUIPMENT OF THIS SHIP IS IN A SATISFACTORY CONDITION AND ELIGIBLE TO RECEIVE THE SOCIETY'S CLASSIFICATION OF L.M.C. 6.49.

THE SOCIETY'S CLASSIFICATION OF L.M.C. 6.49.

The Surveyors are requested not to write on or below the space for Committee's Minute.

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

*R. Stone*

Surveyor to Lloyd's Register of Shipping

Date

Committee's Minute

FRI. 14 OCT 1949



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