

REPORT ON ELECTRIC PROPELLING MACHINERY

No. 19849

JAN 1951

Date of writing Report 8.1.1951 When handed in at Local Office 16.1.1951 Port of Middlesbrough
 No. in Survey held at Haverton Hill-on-Tees Date, First Survey 29.6.50 19 Last Survey 22.12.1950
 Reg. Book. 95143 on ~~Single~~ ~~Triple~~ Screw vessel J. E. V. "San Salvador" Tons Gross 10802.45 Net 6034.65
 Built at Haverton Hill-on-Tees By whom built Funniss Shipbuilding Co. Yard No. 445 When built 1950
 Electrical Machines made at ~~Witton~~ ~~Birmingham~~ By whom made General Electric Co. Generator Nos. 99956 When made 1950
 Shaft Horse Power at Full Power 8300/9000 Motor Nos. 57574
 Machinery Numeral as per Rule Owners Eagle Oil & Shipping Co. Ltd. Total Capacity of Generators 6410/6940 kilowatts
 Trade for which Vessel is intended Carrying petroleum in bulk. Port belonging to London.

PLANS.—Have plans of the Machines, Control Gear, Cables and Circuits been submitted and approved. Yes.

STEAM ENGINES.—Type of Engine Steam Turbine. No. of Engines One R.P.M. 3120 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 bleed steam. — and is a non-return or positive shut-off valve fitted. Yes. Lubricating Oil.—State means provided for emergency supply. 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.

OIL 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. 52/53.7 Kw. per Generator 6940/6410 Volts per Generator 3320/3210 Amps. per Generator 1150/1205 Have certificates of works tests been supplied. Yes. and the results found as per Rule. Yes. Ventilation.—State how arranged (open or closed system) Enclosed system. S.W. Booked. Are ventilating arrangements satisfactory. Yes. Heating when Idle.—What provision is made. 2 x 1.5 KW Heaters in Alternator stator & 8 x 1 KW Heaters in Motor stator. Facilities for Inspection and Repair.—Are these as per Rule. Yes. Are wear-down gauges supplied. Yes. Bilges.—Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory. Yes.

MOTORS.—S.H.P. per Motor at full power. 9000 No. of Motors One Single or double unit Single Volts per Motor 3320 Amps. per Motor 1205 Have certificates of works tests been supplied. Yes. and the results found as per Rule. Yes. A.C. Motors.—Is provision made for machining the slip rings. Yes. 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. — If so, state voltage 103v. Alternator 220v. Prop. Motor. kilowatts for excitation. 24.4/6.4 State excitation arrangements for Propulsion Generators. Port and Starboard separate exciters direct coupled to auxiliary turbo generator sets (main & one standby) with alternative excitation from 220v D.C. Busbars thro diode rectifier and Propelling Motors. Direct from 220v D.C. Busbars. Is an alternative means of excitation provided. Yes. Standby D.C. Motor. Have certificates of works tests been supplied. Yes. and found as per Rule. Yes.

CONTROL.—Position of Main Control Panel Starboard side of Engine Room on 22ft flat aft and adjacent to propulsion alternator. Does it comply with the requirements regarding position. Yes. grouping of controls. Yes. instruments. Yes. insulating materials (state type used). Dead front panel - bakelite insulated cables. 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). Normally electrically closed, but can be closed by hand when they are held in by latches. earthing 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. Overload and Short Circuit Protection.—State means provided. McCall Protective Balanced Current System.

At what load is it set to operate. at all unbalance Has it been tripped by hand when running at full power and found satisfactory. Yes. Are fuses of an approved type. Yes. Siemens 'Z'.

Earth Detection.—Is the main circuit provided with means for detecting earths. Yes. Are aural and visual alarms fitted. Yes. Is main power interrupted by an earth fault. No. If a limiting resistance is in the earth detecting circuit what is the ohmic value. 19.5 What earth leakage current is necessary to operate the device. 0.5 amps. If a switch is used to disconnect the aural signal does it automatically give visual indication. Yes. Are the excitation 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 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. Stator Ammeter, Voltage HP meter, H.P. indicator, Rotor Ammeter, Excitation Voltmeter, McCall Relay, Earth Leakage relay and for each Motor. Excitation Ammeter. Is an Insulation Tester provided. Yes.

Discharge 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. No. If so, is provision made for overload protection, voltage adjustment, etc. —

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...*Yes*...

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

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 installed 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...*Yes*... Is a list of the articles supplied attached to this report...*No*... Are they stored as per Rule...*Yes*...

ELECTRIC PROPULSION EQUIPMENT CONDUCTORS.

DESCRIPTION	CONDUCTORS.		TOTAL MAXIMUM CURRENT—AMPERES*		Rule.	MAXIMUM VOLTAGE TO EARTH.	INSULATED WITH.	DI-ELECTRIC THICKNESS.	HOW PROTECTED.
	No. per Pole.	Nominal Area per Pole.	When Running.	When Manoeuvring.					
MAIN GENERATORS	2	1.5"	1203	3500		3320/13	Porcelain pillars.	-	Shut steel casing
GENERATOR FIELDS	1	0.3"	271 HOT 340 COLD	570 750	408		V.b.	-	L.b.
MAIN MOTORS	2	1.5"	1205	3500		3320/13	Porcelain pillars.	-	Shut steel casing
MOTOR FIELDS	1	0.4"	350 HOT 450 COLD	-	492	-	V.b.	1920 volt grade.	L.b.
CONTROL CIRCUITS									
OTHER CIRCUITS:—									
Exciter Field Post.	1	7/044	3.5 HOT 4.5 COLD	15.0 HOT 15.0 COLD	45	-	V.b.	-	L.b. + B.
Exciter Field Mainboard.	1	7/044	3.5 HOT 4.5 COLD	15.0 HOT 15.0 COLD	45	-	V.b.	-	L.b. + B.
Prop. Motor Vent. Fans	1	19/052	72	-	110	-	V.b.	-	L.b.
Deaerator	1	0.2	271	-	314	-	Pyrolinax.	-	L.b.
Alternator Heaters.	1	7/036	13.7	-	-	-	V.B.R.	-	L.b. + B.
Propulsion Motor Heaters.	1	7/044	36.5	-	45	-	V.b.	-	L.b.

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

The foregoing is a correct description,

W.E. Evans

Electrical Engineers.

Date 2nd January 1951.

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

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

J. W. B. Building Co. Ltd.

Builders' Signature.

Date 10 Jan 1951.

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

General Remarks (State quality of workmanship, opinions as to class, &c.)... The propulsion machinery for this vessel has been installed under special survey and the arrangements are in accordance with or equivalent to those shown on the approved plans and the Rules for Electric Propelling Machinery.

The materials used are of good quality and the workmanship is good.

On completion, the machinery was operated under working conditions, the various protective devices were adjusted and operated, and the insulation resistance of the various circuits was measured and found good.

This machinery is in my opinion suitable for a classed vessel intended for the carriage of petroleum in bulk.

Applied for Birmingham.

The amount of Entry Fee ... £ 188-15-0 : 125 : 16 : 8 : 12 : 18 : 4 : 19

Travelling Expenses (if any) £ : : When received, 19

Date FRI. 9 FEB 1951

Committee's Minute See F.E. mch. rpt.

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