

Rpt. 4d.

REPORT ON ELECTRIC PROPELLING MACHINERY.

No. 73331

27 OCT 1948

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Date of writing Report 18th OCTOBER 48 When handed in at Local Office 22 OCT 1948 Port of GLASGOW

No. in Survey held at GLASGOW Date, First Survey 25th AUGUST 19 Last Survey 12th OCTOBER 1948

Reg. Book. 56049 on ^{Single} ~~Triple~~ ~~Quadruple~~ Screw vessel 'COTTONWOOD CREEK' Tons { Gross 10647 Net 6310

Built at MOBILE, ALABAMA By whom built ALABAMA D.D. & S.B.C. Yard No. 2038 When built 1944

Electrical Machines made at LYNN, MASS. By whom made GENERAL ELECTRIC Co. Contract No. Generator No. 5840757 Motor No. 5690823 When made 1944

Shaft Horse Power at Full Power 6000 H.P. Total capacity of Generators 4925/5400 kilowatts

Nom. Horse Power as per Rule 1415 H.P. Owners BRITISH TANKER Co. LTD Port belonging to LONDON.

Trade for which Vessel is intended CARRYING PETROLEUM IN BULK.

STEAM ENGINES.—Type of Engines TURBINE No. of Engines ONE Revs. per minute 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 as per Rule YES If exhaust steam is admitted, is an

automatic shut-off fitted YES Is provision made for bleeding steam No and

is a non-return or positive shut-off valve fitted YES

Lubricating Oil.—State what means are provided for emergency supply GRAVITY TANK WITH 20 MINUTES SUPPLY

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 Revs. per minute

Is a Governor fitted YES Is the speed variation as per Rule when load is thrown off YES

Is an Emergency Governor fitted YES Does it operate as per Rule YES

Rating.—Has the Engine been tested and found to be capable of developing 10 per cent. overload for one hour as per Rule YES

GENERATORS.—Direct or Alternating Current ALTERNATING CURRENT No. of Generators ONE

If alternating current state number of phases THREE PHASE frequency 60/62 CYCLES

Kilowatts per Generator 4925/5400 P.F. 1 Voltage per Generator 2300/2370 Amperes per Generator 1237/1315

Do they comply with the requirements regarding insulation materials YES

terminals YES, coolers YES, thermometers YES

lubrication YES, position in ship YES, temperature rise

embedded temperature detectors SIX FITTED shaft currents YES

Ventilation.—State how this is arranged (open or closed system) CLOSED SYSTEM

If open system are ventilating arrangements satisfactory YES

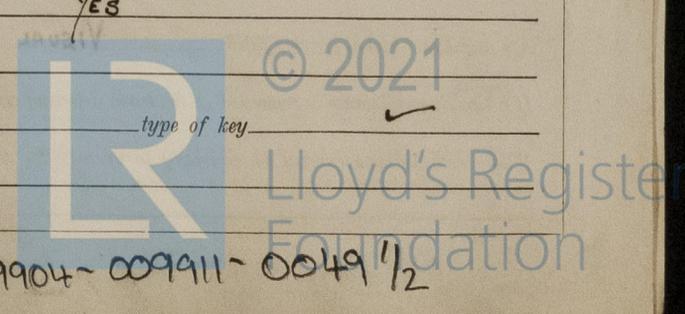
Heating when Idle.—State what provision is made 2-500 WATT HEATERS LOCATED WITHIN INNER SHIELDS OF GENERATOR.

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

Shafts, dia. of journals No. of keys type of key



009904-009911-0049 1/2

MOTORS.—S.H.P. per Motor at full power 6000 No. of Motors ONE
 Single or double unit SINGLE Voltage per Motor 2300 Amperes per Motor 1160
 Do they comply with the requirements regarding insulation materials CLASS B.
 terminals YES, coolers YES, thermometers YES
 lubrication YES, temperature rise YES, embedded temperature detectors YES
 shaft currents YES
A.C. Motors.—Are the laminations securely clamped around the whole of the periphery YES
 and are they insulated from one another with approved material YES
 Is provision made for machining the collector rings NO
 Do the Motors remain in step under all normal conditions of running YES
D.C. Motors.—Are the brushes staggered as per Rule YES
 If the system permits overspeeding at light loads are overspeed protection devices fitted YES

EXCITATION.—Is current for excitation taken from the ship's Auxiliary Generators YES
 If so state voltage 120 and excitation amperes at full power GENERATOR - 175 MOTOR - 390 kilowatts for excitation 75
 State arrangements for excitation of Propulsion Generators EXCITATION FOR PROPULSION GENERATOR AND MOTOR PROVIDED BY A 75KW EXCITER DRIVEN BY AUX. TURBO-SET WHICH CONSISTS OF 400KW ALTERNATOR; 75KW EXCITER + 0.5 KW. D.G. GENERATOR AND PROPPELLING MOTORS. SEE ABOVE.
 If an alternative means of excitation is provided, state particulars TWO AUXILIARY TURBO-SETS - AS ABOVE - ARE PROVIDED.
 Do the Excitation Machines comply with the requirements regarding temperature rise at full power YES
 and after manoeuvring as per Rule YES
D.C. Systems.—Are the arrangements for Motor and Generator excitation as per Rule YES

CONTROL.—Position of Main Control Panel IN MAIN ENGINE-ROOM AT STARTING PLATFORM.
 Do the Control Panels comply with the requirements regarding position YES
 distance from combustible material YES, grouping of controls YES
 and instruments YES, insulating materials (state what type is used) APPEARS TO BE AMERICAN TYPE BONDED ASBESTOS
 spacing and shielding of live parts YES, accessibility of parts YES
 position of fuses YES, proportioning of busbars YES
 locking of screws and nuts YES, labelling YES, fuses for voltmeters, etc. YES
 switches and circuit breakers YES, fusible cutouts YES
 proportioning of levers, connecting links, etc. YES, interlocking YES
 provision for manual operation of contactors, etc. (state method employed) CONTACTORS MANUALLY OPERATED BY LEVERS, INTERLOCKED AGAINST INCORRECT OPERATION.

earthing of instrument cases above 250 volts to earth YES
 provision of renewable arcing tips on switches subject to arcing YES
 capability of withstanding shock and inclination YES
 operation with high and low voltage YES, provision for maintaining alignment of operating shafts YES, rust proofing of parts YES
Overload and Short Circuit Protection.—State what means are provided PHASE BALANCE RELAY FOR PROTECTION AGAINST PHASE FAULTS RESULTING FROM SHORT CIRCUIT BETWEEN PHASES OR OPEN CIRCUIT IN ONE PHASE. FAULT TRIPS EXCITATION BREAKER.
 At what current or load is it set to operate 25% OUT OF BALANCE Has it been tested by tripping by hand when running at full power and found satisfactory NOT TESTED.
Earth Detection.—Is the main circuit provided with means for detecting earths YES
 Are aural and visual alarms fitted VISUAL Is main power interrupted by the occurrence of an earth fault YES
 If a limiting resistance is connected in the earth detecting circuit what is the ohmic value 670 OHMS
 What earth leakage current is necessary to operate the device MINIMUM 0.5 AMPS. MAXIMUM 2.5 AMPS.

If a switch is used to disconnect the aural signal does it automatically switch on the visual alarm 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 YES
 Can they be operated freely without producing currents or loads in excess of the working capacity of the plant YES
 and without reference to electrical instruments YES Is an emergency control provided in the engine room YES
 and can the transfer to this control be made quickly in the engine room YES
 Can the emergency control be rendered mechanically independent of the bridge control YES
Instruments and Gauges.—State what Instruments are provided for each Generator TEMPERATURE INDICATORS (STATOR + FIELD), FIELD AMMETER, SPEED INDICATOR, GENERATOR VOLTS + AMMETER, PHASE BALANCE RELAY, EARTH RELAY, WATCH HOUR METER,
 and for each Motor TEMPERATURE INDICATORS, FIELD AND LINE VOLT AND AMMETERS, REVOLUTION INDICATOR, H.P. METER
 and, for Steam Engines, w at Gauges are provided BOILER PRESSURE, TURBINE NOZZLE, VACUUM, BEARING OIL PRESSURE AND TRIPPING PRESSURE GAUGE. Is an Insulation Tester provided YES.
Discharge Protection.—Are all circuits protected as per Rule YES
D.C. Systems.—If the Generators are connected in series state what means are provided to prevent reversal of rotation YES

A.C. Systems
 Are the Propulsion Generators also used alternatively for other purposes YES - DRIVING CARGO AND STRIPPING PUMPS THROUGH TRANSFORMERS.
 If so, is provision made for overload protection, voltage adjustment, etc., as per Rule YES
Reversing Switches.—Are any provided YES If so, are they interlocked as per Rule YES (ELECTRICALLY)
Resistances.—Are shunt resistances for synchronous motor fields insulated as per Rule YES
Temperature Alarm.—Are machines with enclosed ventilating system, etc., fitted with temperature alarm NO INDICATOR ONLY.
Auxiliary Power.—Are essential services protected from interruption due to overloading of non-essential circuits NO

CONDUCTORS & CABLES.—Are all essential Conductors stranded as per Rule YES
 Are the ends of Paper and Varnished Cambric Insulated Cables sealed YES
 Are the ends of all Cables having a sectional area of 0.01 sq. in. and above provided with Cable sockets AMERICAN TYPE CLAMPS.
 Are all Cables carrying alternating current as per Rule YES Have all Cables been tested at the makers' works as per Rule YES

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

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 SPARE GEAR ON BOARD. [MOTOR - 2 FIELD COILS; SET OF SHIPPING BRUSHES AND INSULATION. ALTERNATOR - SET OF SHIPPING BRUSHES.]
 Are they stored as per Rule YES

ELECTRIC PROPULSION EQUIPMENT CONDUCTORS.

DESCRIPTION—MAIN GENERATORS.	CONDUCTORS.		TOTAL MAXIMUM CURRENT—AMPERES.		MAXIMUM VOLTAGE TO EARTH.	INSULATED WITH.	DI-ELECTRIC THICKNESS.	HOW PROTECTED.
	No. per Pole.	Nominal Area per Pole. Sq. Mils.	In Circuit.	Rule.				
MAIN GENERATORS	3	3,000,000	1315	1708	1330	V.C.	✓	L.C.F.
GENERATOR FIELDS	1	500,000	375	444	120	V.C.	✓	L.C.F.
MAIN MOTORS	3	3,000,000	1160	1708	1330	V.C.	✓	L.C.F.
MOTOR FIELDS	1	500,000	390	444	120	V.C.	✓	L.C.F.
CONTROL CIRCUITS								
OTHER CIRCUITS:—								

All Conductors are of annealed copper, conforming to International Electrotechnical Commission Publication No. 28.

The Insulated Conductors have withstood the dielectric tests specified in the Rules.

The foregoing is a correct description,

Electrical Engineers. Date

COMPASSES.—Are Single-Conductor circuits carrying continuous 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

The maximum deviation due to electric currents was found to be degrees on course in the case of the

Standard Compass and degrees on course in the case of the Steering Compass.

Builders' Signature. Date

Dates of Survey while building
During progress of work in shops
During erection on board vessel
Total No. of visits

GENERALLY SIMILAR TO OTHER TANKERS.

Is this machinery duplicate of a previous case If so, state name of vessel EL MORRO

General Remarks (State quality of workmanship, opinions as to class, &c.) The Electrical Propulsion equipment of this vessel appears to have been installed in accordance with American practice and with the typical plans of T.2. Tankers. The details given in this report were obtained from these plans and instruction booklet on board or from personal observation.

The machinery was examined and tested under working conditions and found satisfactory. The equipment appears in good and efficient condition and, whilst not strictly in accordance with the Society's Rules, it is, in my opinion, such as could be accepted for classification by this Society.

Noted sub 29/11/48

The amount of Fee ... £ 20 : 0 :
Travelling Expenses (if any) £ : :
When applied for, 26 OCT 1948
When received, 19

J.M. Gardiner
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See Rpt 9.

GLASGOW 26 OCT 1948



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