

Rpt. 4d.

No. 73331

REPORT ON ELECTRIC PROPELLING MACHINERY.

Received at London Office

27 OCT 1948

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 19Last Survey 12th OCTOBER 1948

Reg. Book.

Number of Visits

5

56049

Single
on Twin
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

When made 1944

Motor No. 5690823

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

✓

Is provision made for bleeding steam

No

and

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

✓

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

Is the speed variation as per Rule when load is thrown off

Is an Emergency Governor fitted

Does it operate as per Rule

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

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

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

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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 & 55KW. D.C. GENERATOR
and Propelling 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 manœuvring 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, WATH 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
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 SHIPRING BRUSHES AND INSULATION.
ALTERNATOR - SET OF SHIPRING 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	444	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 :
(ADDITIONAL 25% TO M.S. FEE)
Travelling Expenses (if any) £ : :

When applied for,

26 OCT 1948

When received,

19

Committee's Minute

Assigned

See Rpt 9.

GLASGOW 26 OCT 1948

J. M. Gardiner

Surveyor to Lloyd's Register of Shipping.



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