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No. 4336

# REPORT ON ELECTRIC PROPELLING MACHINERY.

Received at London Office 8-MAY-1949

Writing Report 2 March 1949 When handed in at Local Office 3 March 1949 Port of NAPLES

Survey held at Palermo Date, First Survey 10th. I. 1949 Last Survey 20th. 2 1949

Number of Visits 6

24 ~~Single~~ ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel S/S " CLEVELAND " (ex FORBES ROADS) Tons { Gross 10667 Net 6314

at Portland Or. By whom built Kaiser Corp. Inc. Yard No. 57 When built 1944

Machinery made at Schenectady By whom made General Electric Co. { Contract No. ===== Generator No. 5840731 Motor No. 6037830 } When made 1944

Horse Power at Full Power 6000/6600 Total capacity of Generators 4925/5400 kilowatts

Horse Power as per Rule 1485 Owners Cleveland Petroleum Co. Port belonging to London

Use for which Vessel is intended Carrying Petroleum in Bulk

Main M ENGINES.—Type of Engine Steam Turbine No. of Engines One Revs. per minute 3600/3715

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

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 yes and

Non-return or positive shut-off valve fitted Both N.R. and positive shut off

Speed Limiting.—If generator capacity exceeds motor rating, state means provided for limiting torque input to screw shaft Normally generator capacity does not exceed motor rating

Lubricating Oil.—State what means are provided for emergency supply Gravity tank and automatic warning

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

Report.—Has a separate report Rpt. 4a for the Engines been issued yes

Other ENGINES.—Type of Engines = Rev per minute =

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

Emergency Governor fitted = Does it operate as per Rule =

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

Report.—Has a separate report Rpt. 4b for the Engines been issued =

Generator ERATORS.—Direct or Alternating Current A.C. No. of Generators One

Alternating current state number of phases 3 phase frequency 60/62 cycles

Watts per Generator 4925/5400 Voltage per Generator 2300/2370 Amperes per Generator I237/I315

Do they comply with the requirements regarding insulation materials yes

Winds yes, coolers yes, thermometers yes

Position yes, position in ship yes, temperature rise yes

Fixed temperature detectors yes shaft currents yes

Insulation.—State how this is arranged (open or closed system) Closed system

When system are ventilating arrangements satisfactory =

Heating when Idle.—State what provision is made Electric heaters located within inner shields of Generator

Facilities for Inspection and Repair.—Are these as per Rule yes

Wear-down gauges supplied yes Now supplied

Drainage.—Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory yes



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**MOTORS.**—S.H.P. per Motor at full power. 6000/6600 No. of Motors 0

Single or double unit Single Voltage per Motor yes Amperes per Motor 1

Do they comply with the requirements regarding insulation materials yes

terminals yes, coolers yes, thermometers yes, ventilation yes

heating when idle yes, shaft currents yes, facilities for inspection and repair yes

mechanical protection yes, lubrication yes, position in ship 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 yes

Do the Motors remain in step under all normal conditions of running yes

**D.C. Motors.**—Are the brushes staggered as per Rule ==

If the system permits overspeeding at light loads are overspeed protection devices fitted ==

**EXCITATION.**—Is current for excitation taken from the ship's Auxiliary Generators yes see below

If so state voltage 110 and excitation amperes at full power Gen. 175-Mot. 390 kilowatts for excitation 75

State arrangements for excitation of Propulsion Generators Excitation for both propulsion generator and motor is provided by a 75 Kw exciter driven by aux. turbo set which consists of 400 Kw alternator 75 Kw exciter and 55 Kw D.C. Generator

If an alternative means of excitation is provided, state particulars yes two aux. sets, as above

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 ==

**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) Synthetic insulating material

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 main yes

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 to excitation breaker

At what current or load is it set to operate 25% out of balance Has it been tested by by hand when running at full power and found satisfactory

Earth Detection.—Is the main circuit provided with means for detecting earths yes

Are aural and visual alarms fitted yes 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 min. 0,5 - max. 2,5 amp.

switch is used to disconnect the aural signal does it automatically switch on the visual alarm ==

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 ==

they be operated freely without producing currents or loads in excess of the working capacity of the plant ==

without reference to electrical instruments == Is an emergency control provided in the engine room ==

can the transfer to this control be made quickly in the engine room ==

the emergency control be rendered mechanically independent of the bridge control ==

**Instruments and Gauges.**—State what Instruments are provided for each Generator Temp. indicators (Stator and field), Field

alt and ammeters, Speed indicator, Gen. volt and ammeters, Phase balance relay, earth relay.

for each Motor Temp. Indicators, Field and line volt and ammeters, Rev. indicator, H.P. Meter

for Steam Engines, what Gauges are provided Steam, vacuum, lubrication oil pressure gauges

Is an Insulation Tester provided yes

**Charge 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 ==

the Propulsion Generators also used alternatively for other purposes Yes, for driving cargo and stripping pump motors through transformers

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

**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 yes Indicators yes

**Auxiliary Power.**—Are essential services protected from interruption due to overloading of non-essential circuits yes

**DUCTORS & CABLES.**—Are all essential Conductors stranded as per Rule yes

the ends of Paper and Varnished Cambric Insulated Cables sealed yes

the ends of all Cables having a sectional area of 0.04 sq. in. and above provided with Cable sockets yes

all Cables carrying alternating current as per Rule yes Have all Cables been tested at the makers' works as per Rule A.B. tests.

**CONDARY BATTERIES.**—Are Batteries used for starting Main Propulsion Engines No

so, have full particulars been submitted and approved == Have they been tested under ==

working conditions and do they give the number of starts required by the Rules ==

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 no

list of the articles supplied attached to this report No, no list available, but spares on board stated to be adequate

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. Circ. Mils	In Circuit.	Rule, approx. amp. rating				
MAIN GENERATORS	3	3000000	1315	1708	2300	V.C.	=	L.C.A.
GENERATOR FIELDS	1	500000	165	444	110	"	=	"
MAIN MOTORS	3	3000000	1160	1708	2300	"	=	"
MOTOR FIELDS	1	500000	144	444	110	"	=	"
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

Yes

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

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

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

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Builders' Signature.

Date

===

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

=====

Is this machinery duplicate of a previous case If so, state name of vessel T 2 Tanker

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

The electrical propulsion equipment of the vessel appears to be installed in accordance with American practice, and in conformity with the plans on board.

The detail of the report were obtained from plans and instructions on board and were verified as far as practicable

The machinery was examined and tested under working conditions during sea trials and found satisfactory; the equipment appears to be in good and efficient condition, and whilst not strictly in accordance with the Society's rules, is, in my opinion eligible for Classification

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

Rm

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

J. H. Sutcliffe  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute WED 13 APR 1949  
Assigned See minute on p. rpt.