

REPORT ON ELECTRIC PROPELLING MACHINERY.

22 FEB 1949

Received at London Office

22 FEB 1949

Date of writing Report 22 FEB 1949 When handed in at Local Office 22 FEB 1949 Port of LONDON
 No. in Survey held at LONDON Date, First Survey 29th October 1947 Last Survey 18th December 1947.
 Reg. Book.

63772 Single } Screw vessel (A.N. 76) JOHN BISCOE
 on Twin }
 Triple }
 Quadruple }
 Built at Wilmington By whom built American Car & Foundry Corp. Yard No. - When built 1944

Electrical Machines made at Schenck & Co. By whom made General Electric
 N.Y.
 Contract No. NOBS-623
 Generator Nos. 1899104
 1899105 When made 1943
 Motor Nos. 1909502
 1909503

Shaft Horse Power at Full Power 1500. Total capacity of Generators 1240 kilowatts

Nom. Horse Power as per Rule 4. Owners Government of Falkland Islands. Port belonging to Stanley, Falkland Islands

Trade for which Vessel is intended Research & Survey Vessel.

STEAM ENGINES.—Type of Engine No. 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 Is it arranged for hand tripping

Does it trip the throttle valve as per Rule If exhaust steam is admitted, is an

Automatic shut-off fitted Is provision made for bleeding steam and

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

Torque Limiting.—If generator capacity exceeds motor rating, state means provided for limiting torque input to screw shaft.

Lubricating Oil.—State what means are provided for emergency supply

Is the emergency reserve sufficient to maintain lubrication as per Rule

Mechanical Balance.—Are the Engines and Generators balanced so as not to cause appreciable vibration

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

OIL ENGINES.—Type of Engines 4 cycle Diesel - Busch Sulzer Bros. Diesel Eng. Co. per minute 700

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

Is an Emergency Governor fitted No Does it operate as per Rule —

Rating.—Has each Engine been tested and found to be capable of developing 10 per cent. overload for one hour as per Rule No

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

GENERATORS.—Direct or Alternating Current DIRECT No. of Generators Two

If alternating current state number of phases frequency

Kilowatts per Generator 620 Voltage per Generator 270 N.L.; 240 P.L. Amperes per Generator 2585

Do they comply with the requirements regarding insulation materials Standards of American I.E.E.

terminals. yes, coolers. —, thermometers. yes

lubrication. yes, position in ship. yes, temperature rise

embedded temperature detectors. No. shaft currents. yes.

Ventilation.—State how this is arranged (open or closed system) NORMALLY CLOSED WITH FAN SUPPLIED FROM PROP. CIRCUIT.

If open system are ventilating arrangements satisfactory CAN OPERATE WITHOUT FAN BY OPENING PROVIDED IN CASINGS.

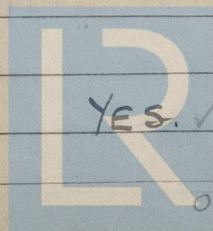
Heating when Idle.—State what provision is made heaters in motor & generator casings fed

from auxiliary switchboard.

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.



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MOTORS.—S.H.P. per Motor at full power

Single or double unit **DOUBLE** Voltage per Motor **240** No. of Motors **unit**
 Do they comply with the requirements regarding insulation materials **American I.E.E.** Amperes per unit **2560**
 terminals **yes**, coolers **-**, 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
 and are they insulated from one another with approved material
 Is provision made for machining the collector rings
 Do the Motors remain in step under all normal conditions of running
D.C. Motors.—Are the brushes staggered as per Rule **YES**
 If the system permits overspeeding at light loads are overspeed protection devices fitted **Selsyn Control.**

EXCITATION.—Is current for excitation taken from the ship's Auxiliary Generators **YES. To supply fields of exciters & M**

If so state voltage **120** and excitation amperes at full power **-** kilowatts for excitation **-**
 State arrangements for excitation of Propulsion Generators **SEPARATE EXCITERS FITTED ON GENERATOR SHAFTS**
 Two, each 70 volt 43 amperes at full power, with fields supplied from aux. generators.
 and Propelling Motors **EXCITED from supply a 120 volts from auxiliary switchboard.**
 If an alternative means of excitation is provided, state particulars **BY BATTERY PROVIDED FOR EMERGENCY**
SHIP'S LIGHTING TO FIELDS OF PROPULSION GENERATOR EXCITERS &
main motor fields.
 Do the Excitation Machines comply with the requirements regarding temperature rise at full power **as for generators.**
 and after manoeuvring as per Rule
D.C. Systems.—Are the arrangements for Motor and Generator excitation as per Rule **yes.**

CONTROL.—Position of Main Control Panel **ON GALLERY ABOVE ENGINE FLAT, AFT.**

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) **Synchro strip: Dead Front Board.**
 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 **A.I.E.E. Standard.**
 proportioning of levers, connecting links, etc. **yes**, interlocking **yes**
 provision for manual operation of contactors, etc. (state method employed) **normally mechanically operated.**
Contactors in excitation circuit are easily accessible at back of cubicle
 earthing of instrument cases above 250 volts to earth **none.**
 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 **none provided: Instruction book states that**
generators & motors are condemned to withstand short circuit conditions and the diesel
engines are therefore the limiting factor.
 At what current or load is it set to operate **engines are therefore the limiting factor.**
 by hand when running at full power and found satisfactory

Earth Detection.—Is the main circuit provided with means for detecting earths **YES - Voltmeter + selector switch**
 Are aural and visual alarms fitted **No** Is main power interrupted by the occurrence of an earth fault **No**
 If a limiting resistance is connected in the earth detecting circuit what is the ohmic value **none.**
 What earth leakage current is necessary to operate the device **-**

If a switch is used to disconnect the aural signal does it automatically switch on the visual alarm **-**
 Are the excitation circuits provided with means for earth detection **YES. Voltmeter + selector switch.**
Mechanical Protection.—Are circuits above 250 volts to earth protected as per Rule **none**
Bridge or Deck Control.—Is bridge control provided **YES** If so, from how many stations **ONE**
 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** } **NORMALLY CONTROLLED**
Can the emergency control be rendered mechanically independent of the bridge control. **YES** } **FROM ENGINE ROOM.**
Instruments and Gauges.—State what Instruments are provided for each Generator **One Voltmeter, one revolution indicator,**
one voltmeter for excitation supply, one ammeter for winch circuit.
 and for each Motor **one voltmeter, one ammeter, one field ammeter.**
 and, for Steam Engines, what Gauges are provided **-**

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 **not in series.**

Are the Propulsion Generators also used alternatively for other purposes **YES for supply to winches.**
 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**
Resistances.—Are shunt resistances for synchronous motor fields insulated as per Rule **none**
Temperature Alarm.—Are machines with enclosed ventilating system, etc., fitted with temperature alarm **no.**
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

Are the ends of Paper and Varnished Cambric Insulated Cables sealed **yes**
 Are the ends of all Cables having a sectional area of 0.04 sq. in. and above provided with Cable sockets **yes**
 Are all Cables carrying alternating current as per Rule **none** Have all Cables been tested at the makers' works as per Rule **U.S. Navy supply.**

SECONDARY BATTERIES.—Are Batteries used for starting Main Propulsion Engines

If 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 **-**
 Are they installed as per Rule **-** Are the charging arrangements satisfactory **no.**

SPARE GEAR.—If engaged on open sea service has a list of spare gear been submitted and approved

Is a list of the articles supplied attached to this report **no: full set of spare gear in accordance with U.S.N. practice.**
 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.	BUSHING TYPE & SIZE
	No. per Pole.	Nominal Area per Pole.	In Circuit.	Rule.					
MAIN GENERATORS	6	296,400	2540	2082	240	Varnished Cambric	Felt-Asbestos & Steel wire Armoured.	SHFA	800
GENERATOR FIELDS	1	14,340	45	45	70	"	"	"	14
" Exciter fields	1	4,497	-	15	120	"	"	"	4
MAIN MOTORS (Double wound) each motor	6	296,400	2540	2082	240	"	"	"	300
MOTOR FIELDS	1	14,340	42	45	120	"	"	"	14
CONTROL CIRCUITS	1	4,497	-	15	120	"	"	"	4
OTHER CIRCUITS:—									
FB244: (Main Prop. Motor—Vand Van 10hp.	1	14,340	36	45	240	"	"	"	14
" 242: Winches—2nd, each 75 hp.	1	198,700	264	240	240	"	"	"	200
" 243: " Aft.	1	4,497	15	15	120	"	"	"	4
" 143: " High excitation (120)	1	22,900	34	60	120	"	"	"	23
" 146: Generator or Motor Ventur.									

120 volt circuits supplied from Auxiliary Switchboard (see p. 13).

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 _____

<p><i>Dates of Survey while building</i></p>	<p><i>During progress of work in shops -</i></p>
	<p><i>During erection on board vessel - -</i></p>
	<p><i>Total No. of visits</i></p>

Is this machinery duplicate of a previous case No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) The electric propelling machinery of this vessel appears to have been constructed and installed in accordance with the plans approved by the Secretary's letter dated 19/11/47, copies of which are enclosed by this Report, with the standards of the American Institute of Electrical Engineers and the requirements of the U.S. Navy - Bureau of Ships.

On completion of minor repairs the whole equipment was megger tested, examined under working conditions, subjected to full power, maneuvering and reverse power trials with satisfactory results.

As now seen, the electric propelling machinery of this vessel is, in my opinion, such as could be accepted for Classification by this Society.

The amount of Entry Fee

... £ 44 : - :

When applied for,

19.

Travelling Expenses (if any)

£ :

When received.

19

Committee's Minute

Assigned

Lmc 10. 48

5847

subject

Oct Eng

CERTIFICATE WRITTEN
1- 12.5.49

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