

Rpt. 4d.

REPORT ON ELECTRIC PROPELLING MACHINERY.

Received at London Office 30 JAN 1945

Date of writing Report 30 JAN 1945 When handed in at Local Office 30 JAN 1945 Port of LONDON

No. in Survey held at RUGBY Date, First Survey 11th November 1943 Last Survey 19th December 1944

Reg. Book. Number of Visits
Single on Trip Screw vessel H.M.S. OLNA Tons { Gross 12667
Net 7737
Built at Wallsend By whom built Swan Hunter Yard No. 1689 When built

Electrical Machines made at Rugby By whom made B.T.H. Contract No. R 197092
Generator Nos R 197083 When made 1944
Motor No. R 125272

Shaft Horse Power at Full Power 11000 Total capacity of Generators 8400 kilowatts

Nom. Horse Power as per Rule Owners Port belonging to

Trade for which Vessel is intended

TEAM ENGINES.—Type of Engines turbine No. of Engines two Revs. per minute 4150

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

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 yes and

Is a non-return or positive shut-off valve fitted To be supplied by shipbuilders.

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

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 yes

IL 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 two

If alternating current state number of phases three frequency 65

Kilowatts per Generator 4200 Voltage per Generator 3000 Amperes per Generator 810 at 1.0 PF.

Do they comply with the requirements regarding insulation materials yes

Terminals yes, coolers see attached memorandum, thermometers yes

Lubrication ✓, position in ship ✓, temperature rise see attached memorandum

Embedded temperature detectors yes shaft currents ✓

Ventilation.—State how this is arranged (open or closed system) closed, open in emergency only see attached memorandum

If open system are ventilating arrangements satisfactory yes

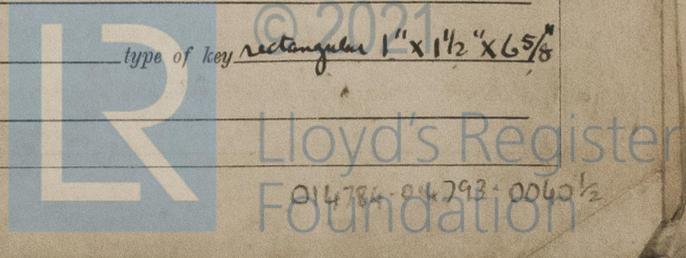
Heating when Idle.—State what provision is made the shunt fields of the alternators and double unit motor are provided with surtiking arrangements so that they may be connected in series and current passed at standstill.

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

Are wear-down gauges supplied wear down gauges provided for alternators.

Bilges.—Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory ✓

shafts, dia. of journals 7 inches No. of keys three type of key rectangular 1" x 1 1/2" x 6 5/8"



MOTORS.—S.H.P. per Motor at full power 11000 No. of Motors one
 Single or double unit double unit Voltage per Motor 3000 on each stator. Amperes per Motor 1620 total
 Do they comply with the requirements regarding insulation materials yes class B.
 terminals yes, coolers see attached memorandum, thermometers yes
 lubrication yes disc and wiper, temperature rise see attached memorandum, 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 the types of the slip rings are split and readily removable.
 Do the Motors remain in step under all normal conditions of running ✓
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
 If so state voltage 220 D.C. and excitation amperes at full power 1364 on double excitation kilowatts for excitation 300
 State arrangements for excitation of Propulsion Generators each alternator shunt field is supplied from its own
motor driven exciter, the motor being supplied from the ships 220 volt supply.
 and Propelling Motors A booster driven by the same motor as the generator exciter is in series with the ships 220 volt supply.
 If an alternative means of excitation is provided, state particulars ✓

Do the Excitation Machines comply with the requirements regarding temperature rise at full power ✓
 and after manœuvring as per Rule ✓
D.C. Systems.—Are the arrangements for Motor and Generator excitation as per Rule ✓

CONTROL.—Position of Main Control Panel ✓
 Do the Control Panels comply with the requirements regarding position ✓
 distance from combustible material ✓, grouping of controls yes
 and instruments yes, insulating materials (state what type is used) ebony and dango for panels, mica tubes for contactors etc.
 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. see attached memorandum, interlocking yes
 provision for manual operation of contactors, etc. (state method employed) contactors are manually operated.

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 maintenance ✓
 alignment of operating shafts see attached memorandum, rust proofing of parts yes
Overload and Short Circuit Protection.—State what means are provided under overload or short circuit conditions the
overload relay trips the excitation circuit breakers.
 At what current or load is it set to operate ✓ Has it been tested by tripping ✓
 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 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 no separate resistance, the reactance of the current transformer limits the current to 350 amperes.
 What earth leakage current is necessary to operate the device earth leakage relay operates on 2 amperes.

switch is used to disconnect the aural signal does it automatically switch on the visual alarm yes
 excitation circuits provided with means for earth detection yes
Mechanical Protection.—Are circuits above 250 volts to earth protected as per Rule ✓
Bridge or Deck Control.—Is bridge control provided ✓ If so, from how many stations ✓
 may 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 Stability Indicator, AC voltmeter with switch
ammeter with switch, wattmeter, Cambridge E.T.D. Indicator for all machines and for air & water temperatures.
 for each Motor as for generators, one complete set for port and aft half motor, and the other for starboard & forward half
 for Steam Engines, & at Gauges are provided Main Steam, 1st Stage, H.P. & L.P. oil, Vacuum
 Is an Insulation Tester provided ✓

Charge Protection.—Are all circuits protected as per Rule yes
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 ✓
 is provision made for overload protection, voltage adjustment, etc., as per Rule ✓
Reversing Switches.—Are any provided ✓ If so, are they interlocked as per Rule ✓
 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
Auxiliary Power.—Are essential services protected from interruption due to overloading of non-essential circuits ✓

INDUCTORS & CABLES.—Are all essential Conductors stranded as per Rule ✓
 the ends of Paper and Varnished Cambric Insulated Cables sealed ✓
 the ends of all Cables having a sectional area of 0.04 sq. in. and above provided with Cable sockets ✓
 all Cables carrying alternating current as per Rule ✓ Have all Cables been tested at the makers' works as per Rule ✓

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

SPARE GEAR.—If engaged on open sea service has a list of spare gear been submitted and approved ✓
 a list of the articles supplied attached to this report no
 are they stored as per Rule ✓

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.	In Circuit.	Rule.				
MAIN GENERATORS								
GENERATOR FIELDS								
MAIN MOTORS								
MOTOR FIELDS								
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,

THE BRITISH THOMSON-HOUSTON CO., LTD.

per *H. Lanning*

Electrical Engineers.

Date 23rd Jan 1945.

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 - 11.11.43, 17.2.44, 3.5.44, 22.6.44, 20.7.44, 5.9.44, 12.9.44, 13.9.44, 14.9.44, 18.10.44, 19.10.44, 30.11.44

During erection on board vessel - 19.12.44

Total No. of visits

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 alternators, propulsion motor, cubicles and control desk, excitation and control panels, and lever gear, and exciter have been manufactured under special survey and in accordance with the approved plans.

The alternators and propulsion motor have undergone running tests on short circuit and open circuit conditions but with open type ventilation, and such as to indicate that the temperature rises comply with the requirements of the Rules for Electric Propelling machinery at a rating of 11000 S.H.P. The exciter sets have been found satisfactory under full load working conditions, and to be capable of the momentary overloads arising during manoeuvring. All the machines have been satisfactorily subjected to the high voltage tests required by the Rules. It was not found possible to completely erect the lever gear in conjunction with the main cubicle, but the cam shaft was independently operated with satisfactory results.

The whole of the control gear was satisfactorily subjected, to earth and between poles and phases, with the high voltage tests as required by the Rules.

The workmanship and materials used in the above components of the electric propelling machinery were found to be good and sound.

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

F.E. 6:0:0
 Elec Prop. Machy 154:5:0
 STM Turbines 65:15:0
 Sub Compacts 15:0:0
 1200v. Excs. 49:2:0

See Indemnity 30/1/45

The amount of Entry Fee	£ 30. 16. 7	When applied for, 4/5/45
Travelling Expenses (if any)	£ 50. 12. 0	When received, 19
Sum	£ 80. 8. 7	
Res.	5. 17. 0	

J. Jaffrey & *E. Crossley*
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 6 JUL 1945

Assigned *See F.E. machy. rpt*



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