

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

11 AUG 1944

Date of writing Report 21<sup>st</sup> July 1944 When handed in at Local Office 22<sup>nd</sup> July 1944 Port of FREETOWN.  
 No. in Survey held at Freetown Date, First Survey 22<sup>nd</sup> May Last Survey 30<sup>th</sup> May 1944  
 Reg. Book. 24017 on the SS EXPORT. (Number of Visits 5)  
 Tons { Gross 760  
       Net 345  
 Built at Mullingen By whom built NV Scheeps HH Bodewes Yard No.  When built 1918  
 Owners NV Rotterdam London Steam Navigation Port belonging to Rotterdam  
 Electric Light Installation fitted by Elder Dempster King Tom Works Contract No.  When fitted May 1944  
 Is the Vessel fitted for carrying Petroleum in bulk No.

**System of Distribution** Double wiring  
**Pressure of supply for Lighting** 110 volts, **Heating**  volts, **Power**  volts.  
**Direct or Alternating Current, Lighting** Direct **Power**   
 If alternating current system, state frequency of periods per second   
 Has the **Automatic Governor** been tested and found efficient when the whole load is suddenly thrown on or off Yes  
**Generators**, do they comply with the requirements regarding temperature rise Not tested, are they compound wound Yes  
 are they over compounded 5 per cent. Yes, if not compound wound state distance between each generator   
 Where more than one generator is fitted are they arranged to run in parallel  is an adjustable regulating resistance fitted in series with each shunt field  Have certificates of test results for machines under 100 kw. been submitted and approved Not available Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing   
 Are all terminals accessible, clearly marked, and furnished with sockets Yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched Yes Are the lubricating arrangements of the generators as per Rule Yes  
**Position of Generators** Starboard end of engine room, is the ventilation in way of the generators satisfactory Yes are they clear of all inflammable material Yes if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators  and  are the generators protected from mechanical injury and damage from water, steam or oil Yes, are their axes of rotation fore and aft Yes,  
**Earthing**, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and their respective generators in metallic contact Yes **Main Switch Boards**, where placed Fore starboard end of engine room  
 If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard   
**Switchboards**, are they placed in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards  and  are they constructed wholly of durable, non-ignitable non-absorbent materials Yes, is all insulation of high dielectric strength and of permanently high insulation resistance Yes, is it of an approved type Yes, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework  is the non-hygroscopic insulating material of an approved type  and is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live parts Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, temperature rise of omnibus bars Not tested, individual fuses to voltmeter, pilot or earth lamp Yes, are moving parts of switches alive in the "off" position No are all screws and nuts securing connections effectively locked Yes are any fuses fitted on the live side of switches No **Main Switchgear**, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Temporary rotary switches  
 Are turbine driven generators fitted with emergency-trip switch as per rule  Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material  **Instruments** on main switchboard  ammeters one voltmeters  synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection   
**Earth Testing**, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth lamps fitted connected to earth **Switches, Circuit Breakers and Fusible Cut-outs**, do these comply with the requirements of the Rules partly are the fusible cutouts of an approved type Yes have the reversed

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current protection devices been tested under working conditions *No* **Joint Boxes, Section and Distribution Boards**, is the construction, protection, insulation, material, and position of these as per rule *Yes*.

**Cables**: Single, twin, concentric, or multicore *Multicore* are the cables insulated and protected as per Tables IV, V, X or *XX* of the Rules *Yes*.

If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes* **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load *Not listed* **Cable Sockets**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *Yes* **Paper Insulated and Varnished Cambrie Insulated Cables**.

If conductors are paper or varnished cambrie insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *Yes*, or waterproof insulating tape *Yes* **Cable Runs**, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *Yes* Are cables in machinery spaces, galleys, *lavatories*, bathrooms and lavatories lead covered or run in conduit *Yes*.

**Support and Protection of Cables**, state how the cables are supported and protected *Clipped to deck heads + bulkheads in positions not liable to damage*

If cables are run in wood casings, are the casings and caps secured by screws *Yes*, are the cap screws of brass *Yes*, are the cables run in separate grooves *Yes*. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *Yes*

**Refrigerated Chambers**, are the cables and fittings in accordance with the special requirements *Yes*

**Joints in Cables**, state if any, and how made, insulated, and protected *Yes*

**Watertight Glands and Deck Tubes**, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yes* **Bushes in Beams and Non-watertight Partitions**, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yes* state the material of which the bushes are made *Lead*

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas *Bonded to bulkheads in all cases*, are their connections made as per Rule *Yes*

**Alternative Lighting**, are the groups of lights in the propelling machinery space arranged as per Rule *Yes* **Emergency Supply**, state position and method of control of the emergency supply and how the generator is driven *12 volt battery, 4 lamps controlled by switch*

**Navigation Lamps**, are these separately wired *Yes*, controlled by separate switch and separate fuses *Yes*, are the fuses double pole *Yes*, are the switches and fuses grouped in a position accessible only to the officers on watch *Yes*, has each navigation lamp an automatic indicator as per Rule *Yes* **Secondary Batteries**, are they constructed and fitted as per Rule *Yes*

**Fittings**, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *Yes* are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *Maest lead light cable and accommodation pod running on top of lower flange of longitudinal girders* are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Bushed cables and fittings in steel pipes and gastight at bunker side clipped to deck head*, how are the cables led where are the controlling switches situated *in piddley*

are all fittings suitably ventilated *Yes*, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yes*

**Heating and Cooking Appliances**, are they constructed and fitted as per Rule *Yes*, are air heaters constructed and fitted as per Rule *Yes*

**Searchlight Lamps**, No. of *Yes*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

**Arc Lamps**, other than searchlight lamps, No. of *Yes*, are their live parts insulated from the frame or case *Yes*, are their fittings as per Rule *Yes*

**Motors**, are their working parts readily accessible *Yes*, are the coils self-contained and readily removable for replacement *Yes*, are the brushes, brush holders, terminals and lubricating arrangements as per Rule *Yes*, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *Yes*, are they protected from mechanical injury and damage from water, steam or oil *Yes* are their axes of rotation fore and aft *Yes*, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Yes*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes* and *Yes* have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yes* **Control Gear and Resistances**, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes* **Lightning Conductors**, where lightning conductors are required, are these fitted as per Rule *Yes* **Ships carrying Oil having a Flash Point less than 150° F.** Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings *Yes* are all fuses of the filled cartridge type *Yes* are they of an approved type *Yes*

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office *Yes*

**Spare Gear**, if the vessel is for open sea service have spares been supplied as per Rule *Not as yet supplied*

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	<i>35476</i>	<i>11</i>	<i>110</i>	<i>100</i>	<i>1200</i>	<i>Mercedes Benz solid injection oil engine No. 305933716.</i>	<i>Lualaba</i>	<i>160°F</i>
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	<i>1</i>	<i>0.2</i>	<i>37</i>	<i>0.083</i>	<i>100</i>	<i>184</i>	<i>8'0"</i>	<i>Rubber covered</i>	<i>Guard rails</i>
EQUALISER CONNECTIONS	<i>✓</i>								
AUXILIARY GENERATOR	<i>✓</i>								
EMERGENCY GENERATOR	<i>✓</i>								
ROTARY TRANSFORMER	<i>✓</i>								
ENGINE ROOM	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>10.0</i>	<i>118.0</i>	<i>60'0"</i>	<i>Rubber lead sheathed</i>	<i>Clipped to deck head and bulk head clear of damage</i>
BOILER ROOM	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>2.5</i>	<i>118.0</i>	<i>60'0"</i>		
AUXILIARY SWITCHBOARDS	<i>✓</i>								
ACCOMMODATION	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>4.0</i>	<i>83.0</i>	<i>140'0"</i>		<i>(In hold by long girders)</i>
	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>12.0</i>	<i>118.0</i>	<i>90'0"</i>		
	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>10.0</i>	<i>118.0</i>	<i>60'0"</i>		
WIRELESS	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>13</i>	<i>118.0</i>	<i>78'0"</i>		
SEARCHLIGHT	<i>✓</i>								<i>(In hold by long girders)</i>
MASTHEAD LIGHT	<i>1</i>	<i>0.0015</i>	<i>1</i>	<i>0.044</i>	<i>4</i>	<i>5.0</i>	<i>180'0"</i>		
SIDE LIGHTS	<i>1</i>	<i>0.0015</i>	<i>1</i>	<i>0.044</i>	<i>4</i>	<i>5.0</i>	<i>30'0"</i>		
COMPASS LIGHTS	<i>1</i>	<i>0.0015</i>	<i>1</i>	<i>0.044</i>	<i>4</i>	<i>5.0</i>	<i>20'0"</i>		
POOF LIGHTS	<i>1</i>	<i>0.0015</i>	<i>1</i>	<i>0.044</i>	<i>4</i>	<i>1.5</i>	<i>110'0"</i>		
CARGO LIGHTS	<i>1</i>	<i>0.1</i>	<i>19</i>	<i>0.083</i>	<i>9.0</i>	<i>118</i>	<i>100'0"</i>		<i>Watertight fittings</i>
ARC LAMPS	<i>✓</i>								
HEATERS	<i>✓</i>								

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

✓ Electrical Engineers.

Date ✓

COMPASSES.

Distance between electric generators or motors and standard compass 28'0"

Distance between electric generators or motors and steering compass 30'0"

The nearest cables to the compasses are as follows:—

A cable carrying .8 Ampères 4 feet from standard compass 4'6" feet from steering compass.

A cable carrying .4 Ampères 4 feet from standard compass 4'6" feet from steering compass.

A cable carrying .3 Ampères 4 feet from standard compass 4'6" feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power Yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted Yes

The maximum deviation due to electric currents was found to be Nil degrees on W by N 1/8 N. course in the case of the standard compass, and Nil degrees on W by N 1/8 N course in the case of the steering compass.

✓ Builder's Signature.

Date ✓

Is this installation a duplicate of a previous case ✓ If so, state name of vessel ✓

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

The above installation has been efficiently fitted. The main switch board, the fitting not complete due to shortage of parts, all main circuits are controlled by rotary switches, the ammeter not to date fitted. The voltmeter placed on switch board just before sailing therefore no routine tests made except the automatic governor which was found satisfactory when all switches thrown out under full load.

The generator, prime mover and all fittings and cables examined and found to be in good condition at this time, and a megger test carried out on the entire system proved satisfactory.

No spare gear has been supplied to date.

It is recommended that the machinery remain as classed without past record, subject to the electrical installation being tested in accordance with the Rules and the main switch board being altered to comply with the Rules. In the meanwhile it is considered efficient.

Total Capacity of Generators 11.0 Kilowatts.

The amount of Fee ... £ 10 : 0 : 0

When applied for, 30.5.19.44

Travelling Expenses (if any) £ : 15 : 0

When received, 5.6.19.44

J. Ross Jones  
Surveyor to Lloyd's Register of Shipping.

TUES. 22 AUG 1944

Committee's Minute

Assigned See minute on Ppt-9

2m.5.84.—Transfer.  
The Surveyors are requested not to write on or below the space for Committee's Minute



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