

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report Nov. 27, 1945 When handed in at Local Office Nov. 27, 1945 Port of PHILADELPHIA
 No. in Survey held at Philadelphia Date, First Survey Sept. 27th Last Survey Nov. 15th 1945
 Reg. Book. 00828 on the TSMV "FOZ DO DOURO" (Number of Visits 8)
 Built at Glasgow By whom built C. Connell & Company Yard No. When built 1892-2
 Owners Julio Ribeiro Campos Port belonging to Oporto
 Electric Light Installation fitted by Kensington D.D. Co. Contract No. When fitted 1945
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution DC 125 volt system 2 wire
 Pressure of supply for Lighting 125 volts, Heating volts, Power 125 volts.
 Direct or Alternating Current, Lighting Direct Power Direct

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 Yes, are they compound wound 1 compound gen-
 erator driven by stb. main motor shunt wound
 are they over compounded 5 per cent. Flat, if not compound wound state distance between each generator wound

Where more than one generator is fitted are they arranged to run in parallel No, is an adjustable regulating resistance fitted in series with each shunt field Yes

Have certificates of test results for machines under 100 kw. been submitted and approved Yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None

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 Aft 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 No 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 Thwartship, aft end of engine room

If the generators and main switchboard are not placed in the same compartment, is each generator provided with 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 bus bars Yes, 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

1 circuit breaker 350 Amp., 1 circuit breaker 175 Amp., Reverse current relay, voltage regulator.

Are turbine driven generators fitted with emergency trip switch as per rule Are cupboards or compartments containing switchboards composed of

resisting material or lined with approved material Yes Instruments on main switchboard 3 ammeters 3 meters 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 Switches, Circuit Breakers and Fusible Cut-outs, these comply with the requirements of the Rules Yes are the fusible cutouts of an approved type Yes have the reversed

current protection devices been tested under working conditions **Yes** 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 **twin** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **Yes**

If the cables are insulated otherwise than as per Rule, are they of an approved type **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load **3%** 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 Cambric Insulated Cables.

If conductors are paper or varnished cambric 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 **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 **lead covered**

Support and Protection of Cables, state how the cables are supported and protected **mounted on stools in steel casing in cargo space**

If cables are run in wood casings, are the casings and caps secured by screws, are the cap screws of brass, are the cables run in separate grooves 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 **None**

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 **all armored** state the material of which the bushes are made **lead**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **All armor grounded**

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 **Batteries in trays with lead lining.**

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

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected

where are the controlling switches situated

are all fittings suitably ventilated, 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, are air heaters constructed and fitted as per Rule

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

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

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

if not of this type, state distance of the combustible material horizontally or vertically above the motors and

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing **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 **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 are all fuses of the filled cartridge type are they of an approved type

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

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule **Yes**

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	1	40	125	320		Diesel	Diesel	.85 spec. grav.	
AUXILIARY	1	20	125	160		Main Shaft Stb. Motor	Power	" " "	
EMERGENCY	Batteries		125	200 amperes	hours				
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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	1	.39	37	.116	320	450 570	60	VC	Leaded & armored
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	1	0.16	19	.105	160	246 209	40	VC	" " "
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR									
ENGINE ROOM	1	.0082	7	.039	15	28 ✓	40	VC	" " "
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION	1	.0032	7	.024	10	13 ✓	60	VC	Leaded & armored
WIRELESS	1	.013	7	.049	15	57 ✓	40	VC	" " "
SEARCHLIGHT									
MASTHEAD LIGHT	1	.0032	7	.024	1/2	13 ✓	300	VC	" " "
SIDE LIGHTS	1	.0032	7	.024	1/2	13 ✓	300	VC	" " "
COMPASS LIGHTS	1	.0032	7	.024	1/2	13 ✓	40	VC	" " "
DECK LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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	1	1	.0082	7	.039	23	28 ✓	15		
MAIN BILGE LINE PUMPS	1	1	.0082	7	.	23	28 ✓	15		
GENERAL SERVICE PUMP	1	1	.02	7	.062	23	75 ✓	400		
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	.0032	7	.024	4	13 ✓	40		
CIRC. SEA WATER PUMPS	2	1	.08	19	.074	112	157 ✓	40		
CIRC. FRESH WATER PUMPS	2	1	.04	7	.087	58	104 ✓	50		
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	.0082	7	.039					
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	.0032	7	.024	6	13 ✓	50		
OIL FUEL TRANSFER PUMP	1	1	.0051	7	.031	12	24 ✓	40		
WINDLASS										
WINCHES, FORWARD	2	1	.03	7	.077	38	87 ✓	200		
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	.02	7	.062	30	75 ✓	55		
WORKSHOP MOTOR										
VENTILATING FANS										
Filter Heater Units	2	1	.0082	7	.039	18	28 ✓	45		
Domestic Refrigerator	1	1	.0032	7	.024	4	13 ✓	30		

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.

KENSINGTON SHIPYARD & DRYDOCK CORP.

Electrical Engineers.

Date Dec 6 1945

COMPASSES.

Distance between electric generators or motors and standard compass 30

Distance between electric generators or motors and steering compass 25

The nearest cables to the compasses are as follows:—

A cable carrying .09 Ampères no feet from standard compass no feet from steering compass.

A cable carrying 1. Ampères 5 feet from standard compass 3 feet from steering compass.

A cable carrying 1.5 Ampères 5 feet from standard compass 3 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 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

KENSINGTON SHIPYARD & DRYDOCK CORP.

Builder's Signature.

Date Dec 6 1945

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

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

This electrical installation has been fitted in accordance with the approved plans, the workmanship and materials are good. The installation has been tried out under full power and all found satisfactory.

Copies of the shop test as supplied by the manufacturers, are attached for the information of the Committee

Total Capacity of Generators 60 Kilowatts.

The amount of Fee ... \$144.00

When applied for,
Nov. 16 19 45
GW

Travelling Expenses (if any) \$ 8.00

When received,
Nov. 21 19 45

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK DEC 27 1945

Assigned Elec. light.



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Foundation