

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office MAR 22 1939

Date of writing Report 16th March 1939 When handed in at Local Office 19 Port of HAMBURG
 No. in Survey held at HAMBURG Date, First Survey 7th January Last Survey 10th March 1939
 Reg. Book. 87293 on the Twin Screw Motor Vessel **BRITANNIA** (Number of Visits 12)
 Tons { Gross 9977
 Net 5801
 Built at HAMBURG By whom built Deutsche Werft A.G. Yard No. 217 When built 1939
 Owners The Texas Co (Norway) A/S Port belonging to Oslo
 Electric Light Installation fitted by Allgemeine Elektrizitäts Gesellschaft Contract No. When fitted 1939
 Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution Two wire, two conductor system
 Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 volts.
 Direct or Alternating Current, Lighting direct current Power direct current
 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 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 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 — Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing —
 Have certificates for generators under 100 kw. been supplied and approved certificates attached
 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 Port forward side of engine room floor, 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 on port side of transverse bulkhead at fore end of engine room floor 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 made tested to 2000 volts A.C. 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 yes, 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 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
 For each generator: a double-pole overload circuit breaker.
 For each outgoing circuit: a double-pole change over switch and a fuse on each pole
 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 yes Instruments on main switchboard 3 ammeters 2
 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
Voltmeter with Ohm scale Switches, Circuit Breakers and Fusible Cut-outs, —
 do 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 — are all fuses labelled as per rule *yes*

Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule *yes*

Cables: Single, ~~twisted~~, concentric, or multicore *yes* are the cables insulated and protected as per Rules IV, X, XI, XII, XIII of the Rules *generally the German standards have been applied*

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 *Power 3.3 volts Lighting 3.0 volts* **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 —, 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 laid under machines or floorplates *yes* if so, are they adequately protected *yes, by steel tubes*

Are cables in machinery spaces, galleys, lawdries, bathrooms and lavatories lead covered or run in conduit *yes*

Support and Protection of Cables, state how the cables are supported and protected *sheet iron cable runs, where necessary cables enclosed in galvanized steel casings or tubing*

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 *gas-tight joint boxes*

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 and wood*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *none*

are their connections made as per Rule —

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 —

—

—

—

—

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, in wheel house*

has each navigation lamp an automatic indicator as per Rule *yes* **Secondary Batteries,** are they constructed and fitted as per Rule —

are they ventilated as per Rule —

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 *gas-tight fitted*

strongly protected glass bowls in pump room how are the cables led

in gas-tight tubing

where are the controlling switches situated *bridge house*

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 —

Searchlight Lamps, No. of incandescent lamps whether fixed or portable *fixed on bridge deck* 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 —

—, 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 — have certificates for all motors for essential services been supplied and approved *certificates attached*

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 *steel masts*

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 fitted 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 flameproof type approved for use in dangerous spaces —

—

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes* are they suitably stored in dry situations *yes*

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PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	each 35	115	305	400	1-cyl. steam engine	—	—
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 ...	2	95	37	1.81	305	303.2	60 / 56		
SHORE CONNECTIONS ...	1	70	37	1.55	100	123.7	92		
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER ...									
ENGINE ROOM ...									
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...	I.	95	37	1.81	48	151.6	21		
	II.	95	37	1.81	48		176		
	III.	50	19	1.83	40	98.3	129		
	IV.	50	19	1.83	25				
	V.	70	37	1.55	100	123.7	50	Rubber	In accommodation spaces lead covered
	VI.	95	37	1.81	120	151.6	50		all the other cables lead covered and armoured.
ACCOMMODATION ...	II.	95	37	1.81	120	151.6	60		
	III.	16	19	1.04	39	49	20		
Navigation Control Board	I.	2.5	1	1.78	2	15.5	98		
Electric Store	I.	10	19	0.82	40	38.1	18		
SUEZ CANAL CONNECTION FOR SEARCHLIGHT	I.	2.5	19	1.3	60	63.2	340		
WIRELESS ...	1	16	19	1.04	19	49	210		
SEARCHLIGHT ...	1	4	19	0.52	17	22.1	26		
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.38	9.4	150 / 130		
SIDE LIGHTS ...	1	1.5	1	1.38	0.38	9.4	24 / 23		
COMPASS LIGHTS ...	1	1.5	1	1.38	0.14	9.4	10		
POOP LIGHTS ...	1	1.5	1	1.38	0.38	9.4	265		
CARGO LIGHTS ...	1	2.5	1	1.78	4.55	15.5	106 / 126		
HEATERS ...	1	1.5	1	1.38	10	9.4	~10		

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 ...	1	1	4	19	0.52	17.6	22.1	32		
(CIRC. SEA WATER PUMPS FOR REFRIGERATING CONDENSER.)	1	1	4	19	0.52	17.6	22.1	54		
CIRC. FRESH WATER PUMPS...										
REFRIGERATING COMPRESSOR ...	2	1	25	19	1.3	62	63.2	2 x 62		
FRESH WATER PUMP ...	1	1	4	19	0.52	17.6	22.1	40		
ENGINE TURNING GEAR...	2	1	25	19	1.3	62	63.2	2 x 60		
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...										
OIL FUEL TRANSFER PUMP ...										
WINDLASS ...										
WINCHES, FORWARD ...										
OIL PURIFIERS ...	2	1	10	19	0.82	25.6	38.1	2 x 32	Rubber	Lead covered and armoured
WINCHES, AFT ...										
WATER CIRCULATING PUMP FOR LA MONT DONKEY BOILER STEERING GEAR—	2	1	10	19	0.82	25.6	38.1	2 x 34		
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...										
WORKSHOP MOTOR LATHE ...	1	1	4	19	0.52	17.6	22.1	25		
VENTILATING FANS ...	2	1	2.5	1	1.78	12.4	15.5	2 x 76		
COOLING WATER PUMP FOR MAIN FUEL INJECTION VALVE NOZZLES	2	1	16	19	1.04	40.5	49	2 x 42		
DRILLING MACHINE ...	1	1	4	19	0.52	17.6	22.1	12		
GRINDING STONE ...	1	1	1.5	1	1.38	4	9.4	10		
STOVE BLOWER ...	1	1	2.5	1	1.78	6.1	9.4	7		
SOUNDING MACHINE ...	1	1	1.5	1	1.38	6	9.4	117		
ECHO SOUNDING MOTOR-GENERATOR	1	1	1.5	1	1.38	2.3	9.4	30		

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Lloyd's Register

010675-010686-00933½

The Electrical Equipment is installed in accordance with the approved plans.

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

The foregoing is a correct description.

ABTEILUNG ELEKTROTECHNISCHE ANLAGEN
ABTEILUNG SCHIFFBAU

Electrical Engineers.

Date 16. März 1939.

COMPASSES.

Minimum distance between electric ~~generators or~~ motors and standard compass about 12 metres

Minimum distance between electric ~~generators or~~ motors and steering compass about 12 metres

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères close to ~~feet from~~ standard compass close to ~~feet from~~ steering compass.

A cable carrying — Ampères — feet from standard compass — feet from steering compass.

A cable carrying — Ampères — feet from standard compass — 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 — course in the case of the standard compass, and nil degrees on — course in the case of the steering compass.

DEUTSCHE WERFT
AKTIENGESELLSCHAFT

Builder's Signature.

Date 17. 3. 1939

Is this installation a duplicate of a previous case yes If so, state name of vessel GERMANIA, Hambg Rep. 23050, 12th Feb. 39

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

Material and workmanship of this Electrical Installation are of good quality.
It has been fitted under Special Survey in accordance with the approved plans, the Secretary's letter and otherwise in compliance with the requirements of the Rules and is eligible in my opinion to be classed.
It has given satisfaction under working conditions.

Plan showing the Installation as actually fitted please find attached.

Noted
28/3/39

Total Capacity of Generators 70 Kilowatts.

The amount of Fee ... RM: 590 : When applied for, 17. 3. 19. 39.

Travelling Expenses (if any) £ : : When received, 25. 4. 19. 39.

H. Röhrs

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 31 MAR 1939

Assigned

See FF machy
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