

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 18 NOV 1935

Date of writing Report 10. Nov. 1935 When handed in at Local Office 19 Port of Hamburg
 No. in Survey held at Hamburg Date, First Survey 23rd Sept. 35 Last Survey 30th Octob. 1935
 Reg. Book. on the Steel Single Sc. Oil Tanker "Marina" (Number of Visits.....)
 Built at Hamburg By whom built Deutsche Werf AG Yard No. 161 When built 1935
 Owners Thorvald Berg Port belonging to Tonsberg
 Electric Light Installation fitted by Allgemeine Electr. Gesellsch. Contract No. 43938 When fitted 1935
 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 50

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 1/2

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 attached

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing yes

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 Main Engine Room; port side 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 1/2 and 1/2

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 Main Engine Room Floor; port side

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 yes

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 1/2 and 1/2

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 marble

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 linked switch and a fuse on each pole. 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 yes Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material yes

Instruments on main switchboard 2 ammeters 2

voltmeters 1 synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection yes

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Insulation Voltmeter

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

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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 single and multicore 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 yes **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load 3.8 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 no paper insulated cables, 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, laundries, bathrooms and lavatories lead covered or run in conduit lead covered

Support and Protection of Cables, state how the cables are supported and protected all armoured cables run in sheet iron troughs and where necessary wholly enclosed in galvan iron casings and tubes.

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 water tight, strong 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 wood and lead.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas two wire system

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 no fitted.

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 For Telegraph and only.

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 yes

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 armast. lamps strongly protected; In Pump Rooms: gas tight strongly protected, how are the cables led gas tight tubing.

where are the controlling switches situated Fore-ship: from Bridge Deck; Aft-ship: from Engine Room

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 only in Capt. Mess room only

Searchlight Lamps, No. of for search lamp, whether fixed or portable portable, 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 Elfa-Auto 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 yes

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	1	15	115	130	400	Steam Engine		
AUXILIARY	1	15	115	130	550	Diesel Engine	Gas oil above 150° F.	
EMERGENCY	1	<u>Replaced by a new set 8.3.17 15.4. 322 amp 376 W. 500 Revs. per Min.</u>					<u>450° F. in fuel tank kept 22409</u>	
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet. 111.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins. 111.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	95	37	1.81	130	150	12	Rubber	Lead covered and armoured.
EQUALISER CONNECTIONS	x	x	x	x	x	x	x	"	"
AUXILIARY GENERATOR	1	95	37	1.81	130	150	18.	"	"
Emergency Generator	1	50	19	1.83	100	105	70.	"	"
ROTARY TRANSFORMER									
ENGINE ROOM	1	1.5	1	1.38	2.5	10	30	"	"
BOILER ROOM	1	1.5	1	1.38	2.5	10	30	"	"
AUXILIARY SWITCHBOARDS	1	2.5	1	1.78	3.7	17.5	232	"	"
Comp. Bridge, Sign Station	1	95.0	37	1.81	65	150	18	From board #2.	"
Upper Bridge Deck, dist. board	1	95.0	37	1.81	75	150	200	"	"
POOP Deck	3	6	19	0.84	25	30	70	"	"
Main	4	4	19	0.52	10	20	86	"	"
Accommodation	6	25	19	1.30	50	63	94	fr. board #2	"
2nd	5	50	19	1.83	102	105	34	"	"
Eng. Room	7	10	19	0.82	34	40	72	"	"
WIRELESS	1	25	19	1.30	32	63	230	"	"
SEARCHLIGHT	1	20	19	1.04	45	50	78	fr. board #186	"
MASTHEAD LIGHT	1	1.5	1	1.38	0.37	10	foremast 104 main mast 172	"	"
SIDE LIGHTS	1	1.5	1	1.38	0.37	10	21	"	"
COMPASS LIGHTS	1	1.5	1	1.38	0.37	10	15	"	"
POOP LIGHTS	1	1.5	1	1.38	0.37	10	264	"	"
Deck Fore-ship	1	2.5	1	1.78	3.7	17.5	72.8	"	"
Deck Aft-ship	1	2.5	1	1.78	3.7	17.5	15.8	"	"
Cook's plates Pantry	1	2.5	1	1.78	3.7	17.5	8	"	"
Eng. Room	1	2.5	1	1.78	3.7	17.5	21	"	"
HEATERS Capt. Room	1	2.5	1	1.78	3.7	17.5	21	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet. 111.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins. 111.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP									Rubber	Lead covered and armoured.
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	10	19	0.82	34	40	26	"	"
CIRC. SEA WATER PUMPS										
CIRC. BILGE WATER PUMPS	1	1	10	19	0.82	34	40	38	"	"
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	2.5	1	1.78	3.7	17.5	36	"	"
ENGINE TURNING GEAR	1	1	35.0	19	1.53	70	91	34	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR	1	1	95	37	1.81	129	150	108	"	"
(b) MAIN MOTOR	1	1	95	37	1.81	82	150	12	"	"
WORKSHOP MOTOR										
VENTILATING FANS										
Lathe	1	1	4	19	0.52	17.6	20	8	"	"
Drilling machine	1	1	4	19	0.52	17.6	20	12	"	"
Grinding	1	1	1.5	1	1.38	4.5	10	14	"	"
2 Oil separators	1	1	4	19	0.52	17.6	20	8 and 12	"	"
Fan for kitchen stove	1	1	1.5	1	1.38	4.5	10	31	"	"
Demag hoisting motor	1	1	2.5	19	1.30	62.0	63	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.

ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT
ABT. f. SCHIFFBAU
BAUBUREAU HAMBURG.

Electrical Engineers.

Date 9. Novbr. 1935.

W. Müller

COMPASSES.

Distance between electric generators or motors and standard compass *about 12 m*

Distance between electric generators or motors and steering compass *10 m. } double wire*

The nearest cables to the compasses are as follows:—

A cable carrying *0.2* Ampères *2* feet from standard compass *2* feet from steering compass.

A cable carrying *1* Ampères *2* feet from standard compass *2* feet from steering compass.

A cable carrying *1* Ampères *2* feet from standard compass *2* 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 *nil* course in the case of the standard compass, and *nil* degrees on *nil* course in the case of the steering compass.

DEUTSCHE WERFT
AKTIENGESELLSCHAFT

18.11.35

W. Müller

Builder's Signature.

Date

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

General Remarks (State quality of workmanship, opinions as to class, &c. *This Electric Installation has been*

fitted in accordance with the approved plans, the Secretary's letters and in conformity with the requirements of the Rules. The materials used and the workmanship are of good quality. Regarding conductors the German Standards have been applied generally. The whole installation has been tested under working condition with satisfactory results. This Electric Installation is eligible in my opinion to be classed with notation "Electric Light".

*Noted by
19/11/35*

2m. 534.—Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minutes.)

Total Capacity of Generators ~~30~~ ⁵⁰ Kilowatts.

The amount of Fee ... *Rm. 450.-* When applied for, *11.11.1935*

Travelling Expenses (if any) *-* When received, *30.11.1935*

W. Müller
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 26 NOV 1935*

*TUE. 18 FEB 1936
FRI. 13 MAR 1936*

Assigned *See Ham*

2670.2

