

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

12 OCT 1936

Received at London Office

Date of writing Report 8th October 1936 When handed in at Local Office 19 Port of Hamburg
 No. in Survey held at Hamburg Date, First Survey 1st Septemb Last Survey 22nd Septemb 1936
 Reg. Book. Steel S. "Norlys" (Number of Volls.....)
 on the Steel S. "Norlys" Tons { Gross 9892
 Net 5901
 Built at Hamburg By whom built Deutsche Werst. A. G. Yard No. 187 When built 1936
 Owners Johan Rasmussen Sandeffjord Port belonging to Panama City
 Electric Light Installation fitted by Messrs. Allg. Elektr. Ges. Hamb. Contract No. 1936
 Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution Two wire, two conductor system.
 Pressure of supply for Lighting 115 volts, Heating 115 volts, Power 115 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 Certificate attached 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 Main Engine Room Floor; port side. ✓, 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 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 ✓
 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 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 ✓ 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 ✓ 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 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 ✓ 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 single and multicore are the cables insulated and protected as per Tables IV, V, X or XI of the Rules yes, generally ✓

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 2.8 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 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, 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 inclosed in galvanized iron casings or 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 bushes ✓

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Two wire, two conductor 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 not 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 only for wireless ✓

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 gaslight armatures lamps strongly protected; in Pump Rooms, strongly protected glass bowls ✓, how are the cables led in 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 ✓

Searchlight Lamps, No. of 1 ✓, whether fixed or portable yes ✓, are their fittings as per Rule yes ✓

Arc Lamps, other than searchlight lamps, No. of 1 ✓, 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 ✓, is 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 ✓

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 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	22	115	192	400	Steam Engine			
AUXILIARY ...	1	22	115	192	550	Diesel Engine	Diesel Oil	above 150° F.	
EMERGENCY ...									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet. 24 in.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins. 24 in.	No.	Diameter. 24 in.	Circuit.	Rate.			
MAIN GENERATOR ...	1	150	61	1.77	192	205.6	11	Rubber	Lead covered
EMERGENCY CONNECTIONS ...	1	95	37	1.81	100	151.6	34	"	and armoured
AUXILIARY GENERATOR ...	1	150	61	1.77	192	205.6	13	"	"
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER } MOTOR GENERATOR ...									
ENGINE ROOM ...									
BOILER ROOM ...	1	1.5	1	1.38	3	9.4	50	"	"
AUXILIARY SWITCHBOARDS ...									
Distr. Board No. 2	1	70	37	1.55	100	123.7	196	"	"
" " " " " "	1	70	37	1.55	75	123.7	25	"	"
" " " " " "	1	2.5	1	1.78	5	15.5	86	"	"
Navigation Lamp B.	1	2.5	1	1.78	2	15.5	20.6	"	"
Distr. Board No. 3	1	6	19	0.64	16	28.7	53	"	"
ACCOMMODATION ...	1	6	19	0.64	25	28.7	68	"	"
" " " " " "	1	95	37	1.81	150	151.6	29	"	"
" " " " " "	1	25	19	1.30	50	163.2	76	"	"
Heat. plate. Pottery	1	10	19	0.85	27	38.1	12	"	"
WIRELESS ...	1	35	19	1.53	30	77.7	230	"	"
SEARCHLIGHTS ...	1	1.5	1	1.38	0.5	9.4	120	"	"
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.5	9.4	190	"	"
SIDE LIGHTS ...	1	1.5	1	1.38	0.5	9.4	20	"	"
COMPASS LIGHTS ...	1	1.5	1	1.38	0.5	9.4	12	"	"
POOP LIGHTS ...	1	1.5	1	1.38	0.5	9.4	250	"	"
CARGO LIGHTS ...	1	2.5	1	1.78	4.5	15.5	90	"	"
HEAD LAMP ...	1	2.5	1	1.78	4.5	15.5	128	"	"
HEATERS ...	1	2.5	1	1.78	12.0	15.5	36	"	"
St. Boiler	1	1.5	1	1.38	5.0	9.4	11	"	"

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet. 24 in.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins. 24 in.	No.	Diameter. 24 in.	In Circuit.	Rate.			
BALLAST PUMP ...									Rubber	Lead covered + armoured
MAIN BILGE LINE PUMPS ...									"	"
GENERAL SERVICE PUMP ...									"	"
EMERGENCY BILGE PUMP ...									"	"
SANITARY PUMP ...	1	1	10	19	0.85	28	38.1	14	"	"
CIRC. SEA WATER PUMPS ...									"	"
CIRC. FRESH WATER PUMPS ...									"	"
AIR COMPRESSOR ...									"	"
FRESH WATER PUMP ...	1	1	6	19	0.64	17.6	28.7	76	"	"
ENGINE TURNING GEAR ...	1	1	35	19	1.53	83.0	77.7	54	"	"
ENGINE REVERSING GEAR ...									"	"
LUBRICATING OIL PUMPS ...									"	"
OIL FUEL TRANSFER PUMP ...									"	"
WINDLASS ...									"	"
WINCHES, FORWARD ...									"	"
Circulating water p. for La Mont Boiler	1	1	10	19	0.85	34	38.1	34	"	"
WINCHES, AFT ...									"	"
Oil Purifiers	2	1	6	19	0.64	28.6	28.7	6	"	"
STEERING GEAR—									"	"
(a) MOTOR GENERATOR ...	1	1	95	37	1.81	75	151.6	94	"	"
(b) MAIN MOTOR ...	1	1	95	37	1.81	65	151.6	18	"	"
WORKSHOP MOTOR ...	1	1	4	19	0.52	17	22.1	26	"	"
VENTILATING FANS ...	1	1	4	19	0.52	17	22.1	28	"	"
Drinking water p.	1	1	2.5	1	1.78	6.5	15.5	19	"	"
Demag. Haul. Rev.	1	1	35	19	1.53	68.0	77.7	24	"	"
Spind. Machine	1	1	1.5	1	1.38	4.3	9.4	16	"	"

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. I. SCHIFFBAU

BAU-UREAU HAMBURG.

Electrical Engineers.

Date 8. 10. 1936.

COMPASSES.

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

Distance between electric generators or motors and steering compass about 10 m

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 1 feet from standard compass 1 feet from steering compass.

A cable carrying 1 Ampères 1 feet from standard compass 1 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

AKTIEGESELLSCHAFT

Builder's Signature.

Date 10. 10. 36

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 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 material used and the workmanship are of good quality. Regarding conductors the German Standards have been applied generally. The whole electric installation has been tested under full working condition with satisfactory results. This electric installation is eligible in my opinion to be classed with notation:— Electr. Light.

Noted

Y. H. W.

14. 10. 36

Total Capacity of Generators 44 Kilowatts.

The amount of Fee ... 520.00

When applied for,

7. 10. 36

Travelling Expenses (if any) £

When received,

21. 11. 36

Committee's Minute

FRI. 16 OCT 1936

Assigned See I.E. mchy report

M. Schneider

Surveyor to Lloyd's Register of Shipping.