

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

21 DEC 1936

Received at London Office

Date of writing Report: 8<sup>th</sup> DEC. 1936 When handed in at Local Office 10 Port of HAMBURG  
 No. in Survey held at HAMBURG Date, First Survey 9<sup>th</sup> OCT Last Survey 25<sup>th</sup> Nov. 1936  
 Reg. Book. on the STEEL SC. "RIGEL" Tons { Gross 1016  
 Net 611  
 Built at HAMBURG By whom built DEUTSCHE WERFT A.G. Yard No. 176 When built 1936  
 Owners TRELLEBORGS ANFARTVGS NYA PARTIER Port belonging to TRELLEBORG  
 Electric Light Installation fitted by A. E. G. - HAMBURG Contract No. - When fitted 1936  
 Is the Vessel fitted for carrying Petroleum in bulk YES.

System of Distribution 2 wire - 2 conductor

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 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 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 yes 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

Position of Generators Engine room Stb. (8kw) and Port. (33kw), 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 Engine room Port side forward  
 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 same compartment

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 micaite 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 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

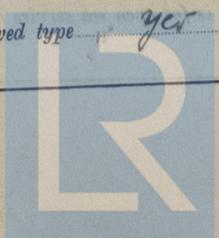
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Generator: 4 wire on each pole and a double-pole linked switch. 4 wire on each pole & a single pole change-over switch.

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 3

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 yes



current protection devices been tested under working conditions  **Joint Boxes, Section and Distribution Boards**, is the construction, protection, insulation, material, and position of these as per Rule  *The German Standards have been applied*

**Cables:** Single, twin, concentric, or multicore  are the cables insulated and protected as per Tables IV, V, & VI of the Rules  *generally*

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 *Power 4 Volts - Light - 3 Volts* **Cable Sockets**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets  **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  *Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit*  *yes*

**Support and Protection of Cables**, state how the cables are supported and protected *lead covered and armoured, supported on fresh iron perforated cable runs*

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 *gaslight 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*

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

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  *electric motors in compartment close to pump room - gaslight glands (open room) - how are the cables led controlled from alleyway near Chief Eng. Room.*

where are the controlling switches situated

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  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 Surveyor's 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  *Red mark* **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*

The Diesel set replaced by a 22 Kw set with a 25 c/s a 2 cy engine with a clutch drive (see page 225-46)

1 Stage Compressor 55 150 dia x 100 stroke (see page 225-46)

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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	33	115	287	750	High 450 S.A. Standard	Sierra Oil	about 170° F.
AUXILIARY	1	8	115	70	450	2 cy		
EMERGENCY		See below						
ROTARY TRANSFORMER		Wolven transformer not fitted, will be fitted later.						

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. In.	No.	Diameter	In Circuit	Rate			
MAIN GENERATOR	2x2	95	37	1.81	287	303.2	24		
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	2	35	19	1.53	70	77.7	46		
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	4x2	1.5	1	1.38	3	9.4	each about		
BOILER ROOM	2x2	1.5	1	1.38	3	9.4	10 to 15		
AUXILIARY SWITCHBOARDS									
Fore. Ach. Rm. All Rm.	2	35	19	1.53	80	77.7	31		
Light. Fore. Ach. Rm.	2	10	19	0.85	35	38.1	72		
Fore. Ach. Rm.	2	4	19	0.52	8	22.1	62		lead covered
Navigation Light	2	2.5	1	1.78	3	15.5	60	rubber	and
Muddler & Fore. Ach. Rm.	2	120	61	1.59	196	219	124		armoured.
ACCOMMODATION									
Second Gallery	2	4	19	0.52	18	22.1	48		
WIRELESS	2	16	19	1.04	-	49	86		
SEARCHLIGHT									
MASTHEAD LIGHT	2	1.5	1	1.38	0.5	9.4	36 - 40		
SIDE LIGHTS	2	1.5	1	1.38	0.5	9.4	16		
COMPASS LIGHTS	2	1.5	1	1.38	0.5	9.4	10		
POOP LIGHTS	2	1.5	1	1.38	0.5	9.4	54		
CARGO LIGHTS	2 For 2.5	1	1.78	4.5	15.5	50			
ARC LAMPS	2 For 2.5	1	1.78	4.5	15.5	50			
HEATERS	2	6	19	0.64	35	28.7	28		

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. In.	No.	Diameter	In Circuit	Rate			
BALLAST PUMP Cargo	2	2	70	37	1.55	115	123.7	40 - 52		
MAIN BILGE LINE PUMPS	2	2	25	19	1.30	56.5	63.2	42 - 46		
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP Fore. Ach.	1	2	6	19	0.64	21	28.7	25		
CIRC. SEA WATER PUMPS	1	2	4	19	0.52	4.7	22.1	38		
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1		95		See Hamburg report 22526 dated 11/37					
FRESH WATER PUMP					27	1.21				
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										lead covered and armoured.
WINDLASS	1	2	95	37	1.81	175	190.5	124	rubber	
WINCHES, FORWARD										
WINCHES, AFT	1	2	50	19	1.33	96	98.3	72		
STEERING GEAR - Elec. Hydraulic										
(a) MOTOR GENERATOR	1	2	6	19	0.64	30	28.7	90		
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS	1	2	16	19	1.04	43	49	32		
Galley Fan	1	2	2.5	1	1.78	4.4	15.5	10		
CAPSTAN - 9 BHP	1		50		See Hamburg report 22526 dated 11/37					

Also General sets removed and one enclosed 4 Cyl. Lister engine driving a Maudslayi Dynamo 22 Kw 100V. Star? and one enclosed 3 Cyl. Lister engine driving a Harland Dynamo 15 Kw 110V. Star?

One enclosed 4 Cyl. Lister engine driving a 25 c/s. Dynamo 22.5 Kw. 115 V. replaces an existing generator set on the Port side (Port side of Main Deck)

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.

AS F. SCHIFFBAU  
BAUWERKHAUS HAMBURG

Electrical Engineers.

Date

14.12.1936

COMPASSES.

Distance between electric generators or motors and standard compass about 3 m.

Distance between electric generators or motors and steering compass 2.5 m.

The nearest cables to the compasses are as follows:—

A cable carrying 0.3 Ampères close to feet from standard compass close to feet from steering compass.

A cable carrying 0.4 Ampères close to feet from standard compass close to feet from steering compass.

A cable carrying 0.4 Ampères close to feet from standard compass close to 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 15/12/36

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. material and workmanship of

this Electric Installation are of good quality. As the conductors used are of the 'German Standard' the Society's Rules regarding to conductors have been applied generally. The installation 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 in the Society's Reg. No.

Noted

True

23.12.36

Total Capacity of Generators 55 Kilowatts.

The amount of Fee ... RM. 505- When applied for, 15/XI/1936

Travelling Expenses (if any) : 22-0-37 When received, 22/1

Friedrich Witt  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See Ham. J.C.  
22126

2m. 5.34. Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.



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