

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 20 JUL 1931

Date of writing Report 15th July 1931. When handed in at Local Office 17th July 1931. Port of Copenhagen

No. in Survey held at Copenhagen Date, First Survey 22nd May Last Survey 10th July 1931

Reg. Book. 91756 on the Hel Twin Screw Motor Tank Vessel "NOREG." (Number of Visits 19)

Built at Copenhagen By whom built Mks. Burmeister & Wain's Maskin-og Skibsbyggeri Yard No. 586 When built 1931

Owners 1/2 1/2 "Corona" (H. M. Waungell & Co 1/2 sign) Port belonging to Haugerund

Electric Light Installation fitted by Mks. Burmeister & Wain's Maskin-og Skibsbyggeri contract No. When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk yes

Tons { Gross 7604.86 Net 4504

System of Distribution Two conductor insulated system

Pressure of supply for Lighting 110 volts, Heating volts, Power 220 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 rating yes, are they compound wound yes

are they over compounded 5 per cent. 0 per cent, if not compound wound state distance between each generator

Where more than one generator is fitted are they arranged to run in parallel yes, is an adjustable regulating resistance fitted in series with each shunt field 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

Position of Generators In the machinery space, are the lubricating arrangements of the generators as per Rule yes

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

Not situated near unprotected woodwork 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 In the machinery space.

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 Not situated near woodwork

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

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 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, proportion of omnibus

bars yes, individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

For each generator: A three pole circuit breaker with overload and reverse current trips

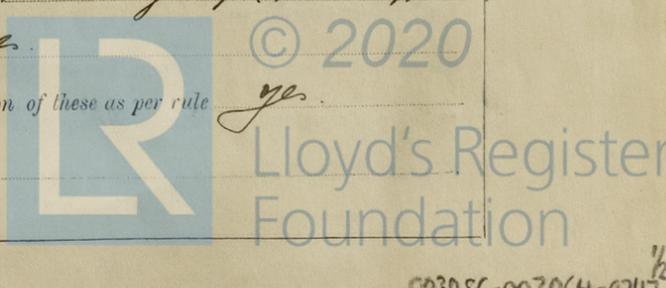
For each outgoing circuit: A double pole switch and a double pole fuse

Instruments on main switchboard 4 ammeters 3 voltmeters synchronising device for paralleling purposes

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system 2 Voltmeters are provided with Ohm scale (1 for 110 volts, 1 for 220 volts) the switchboard is provided with 2 sets of earth testing lamps (1 for 110 volts, 1 for 220v)

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes

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



Single distribution single leads & lamps. These are the cables insulated and protected as per Tables IV or V of the Rules Table IV

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *about 5 volts*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *yes*

Paper Insulated Cables, If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *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*

Support and Protection of Cables, state how the cables are supported and protected *The cables are supported by screwed clips and where necessary protected by steel iron screens or tubes. Steel wire armoured cable used*

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, if lights are fitted, are the cables and fittings in accordance with the special requirements *yes*

Joints in Cables, state if any, and how made, insulated, and protected *No joints in cables*

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 *yes*

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 *yes*

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 *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 *The lamps in the pump rooms etc. contained in gas-tight fittings with strong iron guards, how are the cables led in gas-tight tubing*

where are the controlling switches situated *outside these spaces*

Searchlight Lamps, No. of *yes*, whether fixed or portable *yes*, 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 *Substituted new model of this type, state distance of the combustible material horizontally or vertically above the motors yes and 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*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *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	2	66	220	300	400	Auxiliary heavy oil engine	Crude oil	above 150° F
AUXILIARY	1	5	110	45.5	800	Steam engine		
EMERGENCY								
ROTARY TRANSFORMER	1		220/110	70.5/109	1500	Electro - Motor		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet. <i>H.</i>	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. In. <i>See 4/4</i>	No.	Diameter. <i>in.</i>	In Circuit.	Rule.			
MAIN GENERATOR	2	2 x 95	19	2.52	300	300	40	Vulcanized india rubber	Lead covered and steel wire armoured
EQUALISER CONNECTIONS	1	95	19	2.52		150	20		
AUXILIARY GENERATOR	1	16	7	1.70	45.5	49	62		
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR	1	35	19	1.53	70.5	78	40		
ROTARY TRANSFORMER GENERATOR	1	70	19	2.16	109	124	40		
ENGINE ROOM	1	6	7	1.05	16.4	29	8		
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
AHEADSHIP	1	10	7	1.35	22.5	38	144		
PORT-AFT	1	4	7	0.85	14	22	38		
STARBOARD-AFT	1	2.5	7	0.67	8.7	15.5	34		
DECK	1	10	7	1.35	18	38	144		
FORWARD	1	2.5	7	0.67	3	15.5	90		
ACCOMMODATION									
NAVIGATION	1	2.5	7	0.67	4.6	15.5	168		
WIRELESS	1	10	7	1.35	20	38	160		
SEARCHLIGHT									
MASTHEAD LIGHT	1	1.5	1	1.38	0.36	10	FORE 100 MAIN 20		
SIDE LIGHTS	1	1.5	1	1.38	0.36	10	35		
COMPASS LIGHTS	1	1.5	1	1.38	0.14	10	15		
POOP LIGHTS	1	1.5	1	1.38	0.23	10	210		
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. <i>H.</i>	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. In. <i>See 4/4</i>	No.	Diameter. <i>in.</i>	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
BILGE AND SANITARY PUMP	1	1	16	7	1.70	32	49	51	Vulcanized india rubber	Lead covered and steel wire armoured
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR FEED	1	1	25	7	2.13	56	63	60		
ENGINE TURNING GEAR	2	1	10	7	1.35	28	38	30		
ENGINE REVERSE GEAR	2	1	95	19	2.52	140	148	82		
COOLING WATER AND LUBRICATING OIL PUMPS	1	1	16	7	1.70	32	49	38		
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
CO2 COMPRESSOR	1	1	4	7	0.85	16	22	91		
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
FUEL OIL PURIFIER & WORKSHOP MOTORS	4	1	6	7	1.05	22.5	29	60		
VENTILATING FANS										
LUBR. OIL PURIFIER & HEATER	1	1	25	7	2.13	53	63	81		
LUBRICATING OIL PURIFIER	1	1	4	7	0.85	12	22	8		
" " HEATER	1	1	2 x 6	7	1.05	41	58	8		
FUEL OIL PURIFIER	1	1	2.5	7	10.67	8	15.5	10		
LATHE	1	1	2.5	7	0.67	7	15.5	10		
DRILLING - GRINDING GEAR	2	1	1.5	1	1.38	6 x 15	10	10		

All Conductors are of annealed copper conforming to British Standard Specification No. 7.
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
 The foregoing is a correct description.

**AKTIESELSKABET
 BURMEISTER & WAINSMASKIN- OG SKIBSBYGGERI**

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass About 70 meters
 Distance between electric generators or motors and steering compass About 75 meters

The nearest cables to the compasses are as follows:—

A cable carrying 4.6 Ampères 3 feet from standard compass. 3 feet from steering compass.

A cable carrying 0.14 Ampères to lamp in feet from standard compass. and in 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 0 degrees on all course in the case of the standard compass, and 0 degrees on all course in the case of the steering compass.

**AKTIESELSKABET
 BURMEISTER & WAINSMASKIN- OG SKIBSBYGGERI**

Builder's Signature.

Date

Is this installation a duplicate of a previous case If so, state name of vessel

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

The whole electric lighting and power installation as above described has been fitted in accordance with the Rules, the approved plan and the requirements contained in the Secretary's letter E dated 24th February 1931.

The material and the workmanship are of good description throughout. The electric installation has been tested under full power working conditions and found satisfactory

It is submitted that this vessel is eligible for THE RECORD.

Elec. Light
22/7/31

Recommend the vessel to have notation of ELECTRIC LIGHT in the Register Book.

Total Capacity of Generators 137 Kilowatts.

The amount of Fee ... kr 606.97 { When applied for, 18.7.1931

Travelling Expenses (if any) £ : : { When received, 10.10.1931

A. F. Jacobsen
 Secretary Lloyd's Register of Shipping.

Committee's Minute TUE. 18 AUG 1931

Assigned Elec. Light

Im. 11.29.—Transfer. (The Surreptors are requested not to write on or below the space for Committee's Minute.)



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