Rpt. 13. No. 967.

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 20 JUN 1927

Date of writing Report 13th June 1927 When handed in at Local Office ..... 19 Port of Bremen

No. in Reg. Book. Survey held at Bremen Date, First Survey 12th April Last Survey 10th June 1927 (Number of Visits 10)

on the Stm Sc "MITTELMEER"

Tons { Gross 6370 / Net 3658

Built at Bremen By whom built Deutsche Schiff- u. Maschinenbau A.G. Weser A.G. Weser Yard No. 863 When built 1926/27

Owners Bremer Öl-Transport G. m. b. H. Port belonging to Bremen

Electric Light Installation fitted by Schiffsmotor Elektricität G.m.b.H. Contract No. ..... When fitted 1927

System of Distribution Two-wire two conductors ✓

Pressure *of supply for* **Lighting** 110 ✓ *volts,* **Heating** 220 ✓ *volts,* **Power** 220 ✓ *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 overload* 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

Are all terminals accessible and clearly marked yes, *are they so spaced or shielded that they cannot be accidentally earthed, or short circuited* yes *Are the lubricating arrangements of the generators as per Rule* yes

Position of Generators in Engine space,

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 axis 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 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* ✓ *and* ✓, *are they constructed wholly of durable, incombustible 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 connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework* yes, *and is the frame effectively earthed* yes. *Are the following fittings as per Rule, viz.:— 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* Each generator and each outgoing circuit is controlled by fuse and double pole linked switches.

Instruments *on main switchboard* 6 *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* one voltmeter with ohm scale and earth lamps

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

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

Insulation of Cables, *state type of cables, single or twin* twin *are the cables insulated and protected as per Tables* III *or* IV *of the Rules;* IV

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

Cable Sockets and other connections, *are the ends of all cables having a sectional area of* 0·007 *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* ✓

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* metal clips and steel iron plating

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* ✓

Joints in Cables, *state if any, and how made, insulated, and protected* by watertight 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 Positions, *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* the generator and frame of switch board are earthed, area of earthing connections about 25 mm². *, 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* ✓

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 *, are separate screens provided for the use of oil and electric side lights* yes *, are separate oil lanterns provided for the mast head lights and side lights* 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* lamps contained in gas light fittings enclosed in gas light tubing. *, how are the cables led where are the controlling switches situated* on deck

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 axis 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* ✓

Control Gear and Resistances, *are the generator field and motor speed regulators, starters and controllers constructed as per Rule* yes

Lightning Conductors, *where lightning conductors are required, are these fitted as per Rule* none

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 Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	2	60	230	260	325	Diesel Engine	Gas Oil	above 150° F.
AUXILIARY ...	1	12	115	110	300	Steam Engine		
EMERGENCY ...								
ROTARY TRANSFORMER	1	15 KW	115 D.C. 220 p.h.m.	130 D.C. 92 p.h.m.	1650			

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. mm.	COMPOSITION OF STRAND. No.	Diameter. mm.	Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Metres.	Insulated with	HOW PROTECTED.
	MAIN GENERATOR...	1	300 ✓	61	2.5	260	25	Rubber	Lead covered & armoured
	AUXILIARY GENERATOR ...	1	70 ✓	19	2.15	110	40	"	" " "
	EMERGENCY GENERATOR ...								
	ROTARY TRANSFORMER... ...	1	70 ✓	19	2.15	120	25	"	" " "
	AUXILIARY SWITCHBOARDS ...	1	70 ✓	19	2.15	120	40	"	" " "
	ENGINE ROOM	10	1.5 ✓	1	1.4	each 8	20	"	" " "
	BOILER ROOM								
	WIRELESS	1	10 ✓	7	1.35	30	250	Rubber	Lead covered and armoured
	SEARCHLIGHT								
	MASTHEAD LIGHT...	1	1.5 ✓	1	1.4	2	120	"	" " "
	SIDE LIGHTS	1	1.5 ✓	1	1.4	2	20	"	" " "
	COMPASS LIGHTS	1	1.5 ✓	1	1.4	2	15	"	" " "
	POOP LIGHTS	1	1.5 ✓	1	1.4	2	250	"	" " "
	CARGO LIGHTS	1	1.5 ✓	1	1.4	8	100	"	" " "
	ARC LAMPS								
	HEATERS	1	16 ✓	7	1.7	35	60	"	" " "

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. mm.	COMPOSITION OF STRAND. No.	Diameter. mm.	Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Metres.	Insulated with	HOW PROTECTED.
	BALLAST PUMP	1	35 ✓	19	1.55	80	20	Rubber	Lead covered and armoured
	MAIN BILGE LINE PUMPS ...								
	GENERAL SERVICE PUMP ...								
	EMERGENCY BILGE PUMP ...	2	25 ✓	7	2.1	48	20	"	" " "
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS ...	2	35 ✓	19	1.55	80	30	"	" " "
	CIRC. FRESH WATER PUMPS ...	2	150 ✓	37	2.25	210	30	"	" " "
	AIR COMPRESSOR								
	FRESH WATER PUMP	1	16 ✓	7	1.7	48	40	"	" " "
	ENGINE TURNING GEAR ...								
	ENGINE REVERSING GEAR ...	2	10 ✓	7	1.35	30	50	"	" " "
	LUBRICATING OIL PUMPS ...	1	10 ✓	7	1.35	25	40	"	" " "
	OIL FUEL TRANSFER PUMP								
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT	2	25 ✓	7	2.1	60	80	"	" " "
	STEERING GEAR	1	6 ✓	1	2.75	24	30	"	" " "
	WORKSHOP MOTOR	1	35 ✓	19	1.55	75	25	"	" " "
	VENTILATING FANS	1	10 ✓	7	1.35	40	35	"	" " "
	Emergency Compressor								

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.

SCHIFFSUNION
Elektrizitätsgesellschaft für Kriegs- und Handels-Marine
Zweigbüro Bremen.

Kiesbmann

Electrical Engineers. Date Bremen 1. Juni 1927.

COMPASSES.

Distance between electric generators or motors and standard compass 61 meters

Distance between electric generators or motors and steering compass 60 meters

The nearest cables to the compasses are as follows :—

A cable carrying 50 *Ampères* 7.5 meters ~~feet~~ *from standard compass* 6 meters ~~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 no *degrees on* any *course in the case of the standard compass, and* no *degrees on* any *course in the case of the steering compass.*

Deutsche Schiff- und Maschinenbau Aktiengesellschaft
Werk: Act. Ges. „Weser"
i.V. [illegible]

Builder's Signature. Date Bremen 14. Juni 1927

Is this installation a duplicate of a previous case yes *If so, state name of vessel* S.S. "Biscaya" Bmn. Rpt. No. 964.

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

This electric installation has been fitted in conformity with the approved plans, the Secretary's letters and the requirements of the Rules, tried under working conditions and was found in order. The materials used in the construction and the workmanship are good.

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

23/6/27

Total Capacity of Generators 132 *Kilowatts*

The amount of Fee ... ... £ 33 : 2 : When applied for, 5/6/1927

Travelling Expenses (if any) £ 0 : 6 : When received, 30/6/27

£1/7

H. L. Kahn
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 24 JUN 1927

Assigned Elec Light

1m.9.22.—Transfer.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)