

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

14 JUN 1928

Date of writing Report 2nd June 1928 When handed in at Local Office 10 Port of Copenhagen

No. in Survey held at Copenhagen Date, First Survey 14th March Last Survey 13th May 1928.
Reg. Book. (Number of Visits 17)

40075 on the Screw Motor Vessel "BRETAGNE" Tons { Gross 3176.67
Net 1930.66

Built at Copenhagen By whom built Akt. & Durmeister & Hain's Maskin og Skibsbyggeri Yard No. 355 When built 1927-28

Owners Det. Dansk-Franske Dampskibsselskab (A. N. Petersen) Port belonging to Copenhagen

Electric Light Installation fitted by Akt. & Durmeister & Hain's Maskin og Skibsbyggeri Contract No. 355 When fitted 1928

System of Distribution Direct current, Two conductors, 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

Are the lubricating arrangements of the generators as per Rule yes

Position of Generators in the machinery 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 Not situated near unprotected woodwork or other combustible material

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 body-laths 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 Placed in the 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 Not situated near unprotected woodwork or other combustible material.

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 mica tile 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 reversed current trip.

For each outgoing circuit a double switch and a double pole fuse.

Instruments on main switchboard 5 ammeters 4 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 is provided with an Ohmscale and the switchboard is provided with 2 sets of earth testing lamps.

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



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

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load about 4 Volt.

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 No paper insulated cables used.

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, valves 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 Cables are supported by screwed clips as per Rules.

In holds and where deemed necessary protected by sheet iron casings or by iron tubes.

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 ✓

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 No earthing connections.

are their connections made as per Rule ✓

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule ✓

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 ✓

has each navigation lamp an automatic indicator as per Rule yes

Secondary Batteries, are they constructed and fitted as per Rule None

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where'er 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 ✓

how are the cables led

where are the controlling switches situated ✓

Searchlight Lamps, No. of None, whether fixed or portable ✓, are their fittings as per Rule ✓

Arc Lamps, other than searchlight lamps, No. of None, 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 bushes, brush holders, terminals and lubricating arrangements as per Rule ✓, are the motors placed in well-ventilated compartments in which

inflammable gases cannot accumulate and clear of all inflammable material ✓

are they protected from mechanical injury and damage from water, steam or oil ✓, are their axes of rotation fore and aft ✓

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

not situated near unprotected woodwork or other combustible material, 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 and fitted 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 ✓

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office ✓

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	3	274.58 KW 33 KW	220	174.300 27.150	400	The auxiliary diesel oil engines.	Crude oil	above 150° F.
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER	1	8	220/110	73	1700	Electric motor		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current in Ampères.	Approximate Length (Lead and Return) in Meters.	Insulated with	HOW PROTECTED.
				No.	Diameter in mm.				
	MAIN GENERATOR...	66	7.95	19	2.52	300	abt. 40 "	" "	Lead covered & braided
	EQUALISER CONNECTIONS	1	95	19	2.52	150	" 27-38 "	" "	Flat tape or wire armoured and braided.
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...	1	35	19	1.53	73	abt. 10 "	" "	" " "
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1	2.5	7	0.67	8	" 4 "	" "	" " "
	BOILER ROOM								
	ACCOMMODATION AMIDSHIPS	1	6.1	7	1.05	21	" 40 "	" "	" " "
	" - AFT	1	2.5	7	0.67	6	" 140 "	" "	" " "
	NAVIGATION	1	2.5	7	0.67	4	" 52 "	" "	" " "
	WIRELESS	1	10	7	1.35	14	" 62 "	" "	" " "
	SEARCHLIGHT	1	1.5	1	1.38	0.55 each	" 112 "	" "	" " "
	MASTHEAD LIGHTS	1	1.5	1	1.38	0.55 each	" 120 "	" "	" " "
	SIDE LIGHTS	1	1.5	1	1.38	0.55 each	" 12 "	" "	" " "
	COMPASS LIGHTS	1	1.5	1	1.38	0.15 each	" 10 "	" "	" " "
	POOP LIGHTS	1	1.5	1	1.38	0.3	" 145 "	" "	" " "
	CARGO LIGHTS	1	1.5	1	1.38	1.6	" 24 "	" "	Exposed and braided.
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current in Ampères.	Approximate Length (Lead and Return) in Meters.	Insulated with	HOW PROTECTED.
				No.	Diameter in mm.				
	BALLAST PUMP	1	25	7	2.13	60	abt. 50 "	" "	Lead covered & braided
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	SANITARY PUMP	1	10	7	1.35	36	" 58 "	" "	" " "
	LUBRICATING OIL PUMPS								
	CIRC. SEA WATER PUMPS	2 each	35	19	1.53	80	" 49 "	" "	" " "
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP	1	1.5	1	1.38	5	" 8 "	" "	" " "
	ENGINE TURNING GEAR	1	6.1	7	1.05	20	" 10 "	" "	" " "
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP	1	10	7	1.35	36	" 30 "	" "	" " "
	WINDLASS	5	120	37	2.03	145	" 106 "	" "	" " "
	WINCHES FORWARD	2 each	25	7	2.13	62	" 72 "	" "	" " "
	WINCHES AFT	5	120	37	2.03	145	" 100 "	" "	" " "
	STEERING GEAR								
	(a) MOTOR GENERATOR								
	(b) MAIN MOTOR	1	10	7	1.35	32	" 150 "	" "	" " "
	WORKSHOP MOTOR ETC.	3	10	7	1.35	34	" 30 "	" "	" " "
	VENTILATING FANS								
	TURNING LATHE	1	2.5	7	0.67	10	" 6 "	" "	" " "
	DRILLING MACHINE	1	1.5	1	1.38	4	" 6 "	" "	" " "
	GALEY MOTOR	1	1.5	1	1.38	1.5	" 8 "	" "	" " "
	LUBRICATING OIL PURIFIER	1	2.5	7	0.67	8	" 6 "	" "	" " "
	FUEL OIL	1	2.5	7	0.67	8	" 6 "	" "	" " "
	SEPARATORS.	3	16	7	1.70	48	" 60 "	" "	" " "

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 & WAIN
 MASKIN OG SKIBSBYGGERI**

Electrical Engineers. Date _____

COMPASSES.

Distance between electric generators or motors and standard compass *Generator about 19 Metres, Motor abt. 15 Metres.*

Distance between electric generators or motors and steering compass *" - " - 18 Metres, " - " - 12 " - "*

The nearest cables to the compasses are as follows:—

A cable carrying *4* Amperes *4* Metres *4* feet from standard compass *4* Metres *4* feet from steering compass.

A cable carrying *0.15* Amperes *to lamp in the* feet from standard compass *and in the* feet from steering compass.

A cable carrying *✓* Amperes *✓* 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 _____

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 & WAIN
 MASKIN OG SKIBSBYGGERI**

Builder's Signature. Date _____

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *M/S*

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 requirements of the Rules, the approved plan and the Secretary's letter E. dated the 20th July 1927.

The material used in the installation and the workmanship throughout are of good description in every respect.

The whole electric lighting and power installation has been tested under full power working condition and found satisfactory.

Recommend the vessel to have notation in the Register Book of "Electric Light."

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

Total Capacity of Generators *132* Kilowatts.

The amount of Fee ... *£ 602.09* : *12.6* 19 *28* When applied for,

Travelling Expenses (if any) £ : : *8.8* 19 *28* When received,

A. E. Debech
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUES. 19th JUN 1928*

Assigned *Elec Light*

Im 1,20.—Transfer. (The Surveys are requested not to write on or below the space for Committee's Minute.)