

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 23/11 When handed in at Local Office 28 Port of Copenhagen Received at London Office 6 DEC 1928

No. in Survey held at Odense Date, First Survey 24/9 Last Survey 15/11 1928  
Reg. Book.

89552 on the Steel Twin S. Motor vessel "Caroline Braerke" (Number of Visits 6)

Built at Odense By whom built Odense Maskfabrikk Yard No. 30 Tons { Gross 7690.95  
Net 4712.67  
When built 1928

Owners "S. Hensberg" of "S. af 1912" Port belonging to Fredericia

Electric Light Installation fitted by S. Dansk Elektricitetskompani Contract No.      When fitted 1928  
Odense

System of Distribution Two conductor insulated system  
Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting direct Power       
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. yes, 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 placed in the motor room, one in each 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 in the motor room  
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 of marble, 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

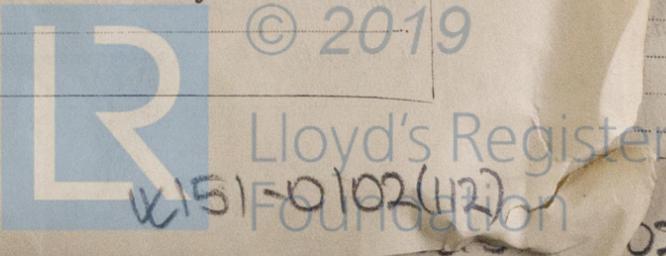
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches for each generator: one 2 pole pole circuit breaker with overload current trip & equalizer switch as per Section 3, para 3 A, clause (f). For each outgoing circuit: One 2 pole linked switch & a fuse on each pole.

Instruments on main switchboard 5 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 sets of earth lamps, one Voltmeter fitted with  $\Omega$  scale.

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* are the cables insulated and protected as per Tables IV and V of the Rules *yes*.

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *3 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 *armoured cables used; in engine room laid on steel plates secured by clips, on deck laid on steel plates alongside gangway, secured by clips - covered in by 5/16" steel plates.*  
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*.

**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 *lamps in pump room contained in gastight 2lb glass globes protected by iron grids. how are the cables led through galvanised iron tubes, carried gastight into fittings*

where are the controlling switches situated *on auxiliary switch board in the alleyway to saloon*

**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*. 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 *yes*, if not 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 *only battery fed portable lamps supplied*.

**PARTICULARS OF GENERATING PLANT.**

DESCRIPTION OF GENERATOR	No. of	RATED AT			DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Ampères		Fuel Used	Flash Point of Fuel
MAIN	2	100	220	450	400	Two 3-cyl. Diesel engines.	Oil Diesel oil above 150° F.
AUXILIARY							
EMERGENCY							
ROTARY TRANSFORMER	1	18	110	164	1350	On 27 H. Electric motor.	

**LIGHTING AND HEATING CONDUCTORS.**

Ref. No.	DESCRIPTION.	No. of Conductors	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	475	91	2.58	450	40	india rubber	lead covered
	EQUALISER CONNECTIONS	1	475	91	2.58		20		and
	AUXILIARY GENERATOR								steel wire
	EMERGENCY GENERATOR								armoured.
	ROTARY TRANSFORMER	2	125	37	2.1	164	24		
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	2	2.5	7	0.67	12	7		
	BOILER ROOM								
	ACCOMMODATION AFT	2	6	7	1.05	20	62		
	MIDSHIPS	2	6	7	1.05	15	152		
	NAVIGATION LIGHTS	2	2.5	7	0.67	2.5	180		
	WIRELESS	2	10	7	1.35	20	180		
	SEARCHLIGHT	2	16	7	1.70	40	252		
	MASTHEAD LIGHT	1	1.5	1	1.38	0.4	132		
	SIDE LIGHTS	1	1.5	1	1.38	0.4	34		
	COMPASS LIGHTS	1	1.5	1	1.38	0.2	27		
	POOP LIGHTS	1	1.5	1	1.38	0.4	208		
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS AFT	2	50	19	1.83	9	62		
	MIDSHIPS	2	50	19	1.83	10	152		

**MOTOR CONDUCTORS.**

Ref. No. H.P.	DESCRIPTION.	No. of Motors	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
9	BALLAST PUMP	1	10	7	1.35	30	42	india rubber	lead covered
	MAIN BILGE LINE PUMPS								and
	GENERAL SERVICE PUMP								steel wire
9	BILGE PUMP	1	10	7	1.35	30	38		armoured.
1.25	SANITARY PUMP	1	2.5	7	0.67	4	46		
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
6	AIR COMPRESSOR	1	6	7	1.05	20	128		
	FRESH WATER PUMP								
3	ENGINE TURNING GEAR	2	2.5	7	0.67	10	15		
	ENGINE REVERSING GEAR								
30	COOLING WATER AND LUBRICATING OIL PUMPS	1	70	19	2.16	100	42		
15	SPARE LUBR. OIL PUMP & OIL FUEL TRANSFER PUMP	1	2.5	7	2.13	50	42		
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT								
	STEERING GEAR								
	(a) MOTOR GENERATOR								
22	(b) MAIN MOTOR	1	50	19	1.83	75	124		
3	WORKSHOP MOTOR	1	2.5	7	0.67	10	37		
0.25	VENTILATING FANS GALLEY	1	2.5	7	0.67	1	105		
35	SUPERCHARGING FANS	2	95	19	2.52	120	33		
27	MOTOR GEN. FOR LIGHT	1	50	19	1.83	100	22		
2	OIL PURIFIERS	2	2.5	7	0.67	6.5	42		

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.

*N. Dansk Elektrik Selskab*  
*Syngbyvej.*

Electrical Engineers.

Date 1/12-28.

COMPASSES.

Distance between electric generators ~~or motors~~ and standard compass ca. 200'

Distance between electric generators ~~or motors~~ and steering compass ca. 205'

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères 10" feet from standard compass 10" feet from steering compass.

A cable carrying 2.5 Ampères 10 feet from standard compass 14 feet from steering compass.

A cable carrying 0.4 Ampères 14 feet from standard compass 3 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 *any* course in the case of the standard compass, and 0 degrees on *any* course in the case of the steering compass.

PR. ODENSE STAALSKIBSVÆRFT  
 VED A. P. MØLLER

*Johannes Møller*

Builder's Signature.

Date

Is this installation a duplicate of a previous case *yes.* If so, state name of vessel *"1/2 Jane Mærsk"*

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

*The Electric Light & Power Installation as above described has been fitted in accord. with the Society's Rules, the approved plan (with one single alteration as shown on the corrected plan) and the requirements contained in the Secretary's letters of dated 22/3/28, the material used being of good description throughout and the workmanship of high quality.*

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

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

*(S)*  
 10/12/28.

Total Capacity of Generators 200 Kilowatts.

The amount of Fee ... £ 664.30

Travelling Expenses (if any) £

When applied for, 4.12.19.28

When received, 7.1.19.29

*A. Mühlfeldt*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

*Elec. Light*

1m, 28.—Transfer.  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

