

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....15 MAY 1929

Date of writing Report <sup>3/5</sup> 1929. When handed in at Local Office 19 Port of *Copenhagen*

No. in Survey held at *Odense* Date, First Survey *4/2* Last Survey *27/4* 19 *29*  
Reg. Book. (Number of Visits...*10*.....)

*89097* on the *Steel Twin Sc. 3 Mast "ABRAHAM LINCOLN"* Tons {Gross *5783.53*  
Net *3603.41*

Built at *Odense* By whom built *Odens Staalskibsvaerk* Yard No. *32* When built *1928-9*

Owners *1/5 Bonheur (Fred Olsen & Co.)* Port belonging to *Oslo*

Electric Light Installation fitted by *1/5 Dansk Elektricitetskompagni* Contract No. *-* When fitted *1929*

Is the Vessel fitted for carrying Petroleum in bulk *No*

System of Distribution *2 conductor insulated system*

Pressure of supply for Lighting *110* volts, Heating *✓* 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 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, port side, floor level*, 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 *on a platform in the forward end of 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 marbl.*, 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 micaite 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 *generators: one 266*

*pole circuit breaker with overload & reversed current trip and equalizer switch as per Sect. 3 par. 3.A. (f)*

*outgoing circuits: One 266 pole linked switch with a fuse on each pole.*

Instruments on main switchboard *8* ammeters *5* 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, no voltmeter fitted with Ohm-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*



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

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *1.5 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 *armoured or steel wire braided cables used, supported by clips, in holds laid in galvanized iron tubes under upper deck.*

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 *no lamps in chambers.*

**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 *yes*.

how are the cables led *yes*.

where are the controlling switches situated *yes*.

**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 *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 *yes*.

**PARTICULARS OF GENERATING PLANT.**

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3	100	220	455	400	3 off 3-cyl. Diesel engine	ord. Diesel oil	above 150° F
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER	1	20	110	182	1500	30 HP electric motor		

**GENERATOR, LIGHTING AND HEATING CONDUCTORS.**

DESCRIPTION.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.			Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.					
MAIN GENERATOR ...	1	475	71	2.60	455	457	44	44	india rubber	lead covered	
EQUALISER CONNECTIONS		475	71	2.60		457	22	22	"	and steel wire armoured	
AUXILIARY GENERATOR ...											
EMERGENCY GENERATOR	1	50	19	1.83	100	100	39	39	"	"	
ROTARY TRANSFORMER MOTOR	1	125	37	2.07	182	190	41	41	"	"	
ENGINE ROOM ...											
BOILER ROOM ...											
AUXILIARY SWITCHBOARDS											
NAVIGATION LIGHT	1	2.5	7	0.67	1 1/2	15	136	136	"	"	
ACCOMMODATION											
AFT	1	6	7	1.05	15	28	146	146	"	"	
DECKHOUSE I	1	10	7	1.35	20	38	47	47	"	"	
II	1	10	7	1.35	25	38	118	118	"	"	
WIRELESS	1	10	7	1.35	10	38	139	139	"	"	
SEARCHLIGHT ...											
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.2	10	52	52	"	"	
SIDE LIGHTS ...	1	1.5	1	1.38	0.2	10	31	31	"	"	
COMPASS LIGHTS ...	1	1.5	1	1.38	0.2	10	17	17	"	"	
POOP LIGHTS ...	1	1.5	1	1.38	0.2	10	178	178	"	"	
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.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.					
BALLAST PUMP ...	1	1	25	7	2.13	50	63	56	56	india rubber	lead covered	
MAIN BILGE LINE PUMPS	1	1	16	7	2.13	30	48	59	59	"	and steel wire armoured	
SANITARY GENERAL SERVICE PUMP												
EMERGENCY BILGE PUMP	1	1	6	7	1.05	17	28	76	76	"	"	
SANITARY PUMP	1	1	6	7	1.05	20	28	93	93	"	"	
CIRC. SEA WATER PUMPS	2	1	6	7	1.05	20	28	24	24	"	"	
CIRC. FRESH WATER PUMPS	2	1	200	37	2.616	250	245	24	24	"	"	
AIR COMPRESSOR	2	1	6	7	1.05	27	28	68	68	"	"	
FRESH WATER PUMP	2	1	6	7	1.05	27	28	68	68	"	"	
ENGINE TURNING GEAR	2	1	6	7	1.05	27	28	68	68	"	"	
ENGINE REVERSING GEAR	2	1	125	37	2.108	165	185	26	26	"	"	
COOLING WATER AND LUBRICATING OIL PUMPS	2	1	25	7	2.13	50	63	53	53	"	"	
OIL FUEL TRANSFER PUMP	1	1	150	37	2.27	175	205	161	161	"	steel wire braided	
WINDLASS	2	1	70 x 4	19	2.16	165	172	121	121	"	"	
WINCHES, FORWARD	2	1	70 x 4	19	2.16	165	172	119	119	"	"	
WINCHES, AFT	2	1	70 x 4	19	2.16	165	172	104	104	"	"	
STEERING GEAR—												
(a) MOTOR GENERATOR	1	1	50	19	1.83	75	115	160	160	"	"	
(b) MAIN MOTOR	1	1	6	7	1.05	10	28	69	69	"	steel wire armoured	
WORKSHOP MOTOR	1	1	6	7	1.05	20	28	51	51	"	"	
VENTILATING FANS	2	1	6	7	1.05	20	28	36	36	"	"	
"	2	1	6	7	1.05	10	28	58	58	"	"	
"	2	1	25	7	2.13	53	63	42	42	"	"	
BRINE PUMPS	2	1	6	7	1.05	20	28	47	47	"	"	
"	1	1	6	7	1.05	8.5	28	46	46	"	"	
FUEL OIL PURIFIER	1	1	2.5	7	0.67	10	15	28	28	"	"	
WBR	1	1	2.5	7	0.67	6.5	15	19	19	"	"	

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.

**Mr. Dansk Elektricitetscompagni**  
*Arbejdsskema Lyngbyvej.*

Electrical Engineers.

Date 7-5-1929.

**COMPASSES.**

Distance between electric generators or motors and standard compass 20'

Distance between electric generators or motors and steering compass 16'

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères 11" feet from standard compass 11" feet from steering compass.

A cable carrying 1.4 Ampères 10 feet from standard compass 6 feet from steering compass.

A cable carrying 0.2 Ampères 12 feet from standard compass 5 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 No If so, state name of vessel

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

*The Electric Light and Power Installation as above described has been fitted in accordance with the Society's Rules, the approved plan (as amended) and the requirements contained in the Surveyor's letter & dated 15/1/1929.*

*The material used for the installation is of good description throughout and the workmanship of high quality.*

*After completion the whole installation was tested under full power working conditions and found satisfactory.*

*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.**

*YRM*  
17.5.29

Total Capacity of Generators 300 Kilowatts.

The amount of Fee ... 16.70.80 : 13.5.29

Travelling Expenses (if any) £ : : 25.5.29

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

WED. 22 MAY 1929

Committee's Minute

Assigned Elec. Light

1m.12.28.—Transfer.  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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