

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-4 APR 1932

Date of writing Report 22/3 1932 When handed in at Local Office 19 Port of Copenhagen
 No. in Survey held at 41766 Reg. Book. on the Blue Single Screw Motor vessel "PETER MÆRSK" Date, First Survey 20/11 31 Last Survey 19/3 1932
 (Number of Visits 3) Tons { Gross 5339.40 Net 3340.73
 Built at Odense By whom built Odense Skibskilleværft Yard No. 45 When built 1931-2
 Owners A/S. D/S "Svendborg" of "D/S af 1912, A/S" Port belonging to Copenhagen
 Electric Light Installation fitted by A/S Dansk Elektricitetskompani Contract No. 1 When fitted 1931-2
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two conductors insulated system ✓

Pressure of supply for Lighting 110 ✓ volts, Heating 220v ✓ 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, 1 off 66 kwh ft. side, 1 off 100 kwh & 1 off 66 kwh stl. 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, port side, floor level ✓

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 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 266

pole circuit breaker with overload and reverse-current trip and a single-pole equalizer switch as per

sect. 3, para. 3, A. (f). Outgoing circuits: A fuse on each pole and a 266 pole linked switch. ✓

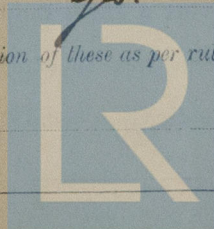
Instruments on main switchboard 6 ammeters 4 voltmeters ✓ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

1 voltmeter fitted with Ohm scale, 2 sets of earth 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 ✓



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Cables: Single, twin, concentric, or multicore *single & twin* are the cables insulated and protected as per Tables IV & V of the Rules *yes*.
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *LIGHT: 5 Volts; POWER: 6 1/2 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, laid on steel plates, secured by the clips and protected by the casing, or the tube*.

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 *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 ...	2	66	220	300	320	2 off 2 cyl. 25 C.S.A. DIESEL ENGINES	CRUDE OIL	> 150° F
AUXILIARY ...	1	100	220	455	320	1 off 3 " " " " " "	" "	" "
EMERGENCY ...	1	40	220	182	610	1 off 1 cyl. Steam Engine fitted 10-21-15. & Parallel	" "	" "
ROTARY TRANSFORMER	1	20	110	182	1500	1 off 30 HP ELECTRO MOTOR	" "	" "

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	No. of	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. In.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	1	1	275	61	2.37	300	298	18.77	india	lead covered
EQUALISER CONNECTIONS ...	1	1	275	61	2.37	298	298	9.40	rubber	and
MAIN GENERATOR ...	2	2	2200	37	2.62	455	490	90	"	steel wire
EQUALISER CONNECTION ...	1	1	2200	37	2.62	490	490	45	"	armoured
ROTARY TRANSFORMER ...	1	1	50	19	1.83	100	78	28	"	cables, where
ENGINE ROOM ...	1	1	120	37	2.03	182	177	28	"	uninsulated
BOILER ROOM ...	1	1	6	7	1.05	12	28.6	3	"	protected by the
AUXILIARY SWITCHBOARDS ...	1	1	95	19	2.52	125	148	56	"	plating.
FOR LIGHT	1	1	95	19	2.52	125	148	56	"	"
ACCOMMODATION ...	1	1	16	7	1.70	30	48.7	152	51	"
DECK HOUSE ...	1	1	35	19	1.53	60	77	76	"	"
" " " " ...	1	1	16	7	1.70	30	48.7	2	"	"
NAVIGATION ...	1	1	2.5	7	0.67	2.5	15.5	60	"	"
WIRELESS ...	1	1	6	7	1.05	15	28.6	140	67	"
SEARCHLIGHT ...	1	1	10	7	1.35	NOT FITTED	38	3	"	"
MASTHEAD LIGHT ...	1	1	1.5	1	1.38	0.27	10	62	"	"
SIDE LIGHTS ...	1	1	1.5	1	1.38	0.27	10	26	"	"
COMPASS LIGHTS ...	1	1	1.5	1	1.38	0.27	10	7	"	"
POOP LIGHTS ...	1	1	1.5	1	1.38	0.27	10	204	"	"
CARGO LIGHTS ...	1	1	1.5	1	1.38	0.27	10	204	"	"
ARC LAMPS ...	1	1	2.5	7	0.67	4.5	15.5	12	"	"
HEATERS ...	1	1	2.5	7	0.67	4.5	63	58	"	"
" " " " IN FILTER	1	1	2.5	7	0.67	4.5	63	58	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. In.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...	1	1	25	7	2.13	50	63	66	india	lead covered
MAIN BILGE LINE PUMPS ...	1	1	25	7	2.13	45	63	102	rubber	and
DEEP TANK ...	1	1	200	37	2.62	217	245	46	"	steel wire armoured
GENERAL SERVICE PUMP ...	1	1	2.5	7	0.67	10	15.5	12	"	not cables
EMERGENCY BILGE PUMP ...	1	1	2.5	7	0.67	10	15.5	12	"	where necessary
SANITARY PUMP ...	2	1	50	19	1.83	85	78	15	"	lead in iron
CIRC. SEA WATER PUMPS ...	1	1	2.5	7	0.67	1	15.5	58	"	tubes or protected
CIRC. FRESH WATER PUMPS ...	2	1	16	7	1.70	37	48.7	102	"	by the plating.
FRESH WATER PUMP ...	1	1	16	7	1.70	27	48.7	61	"	"
ENGINE TURNING GEAR ...	1	1	70	19	2.16	100	124	146	"	"
WARPING WINCH ...	2	1	120	37	2.03	165	177	33	"	"
ENGINE REVERSING GEAR ...	1	1	16	7	1.70	30	48.7	25	"	"
LUBRICATING OIL PUMPS ...	1	1	120	37	2.03	175	177	211	"	"
OIL FUEL TRANSFER PUMP ...	1	1	16	7	1.70	30	48.7	25	"	"
WINDLASS ...	1	1	120	37	2.03	175	177	211	"	"
WINCHES, FORWARD ...	2	1	120	37	2.03	165	235	235	"	"
WINCHES, AFT ...	2	1	120	37	2.03	165	235	235	"	"
STEERING GEAR—										
(a) MOTOR GENERATOR ...	1	1	16	7	1.70	33	48.7	180	"	"
(b) MAIN MOTOR ...	1	1	16	7	1.70	33	48.7	180	"	"
WORKSHOP MOTOR ...	4	1	50	19	1.83	70	78	26	"	"
VENTILATING FANS/HEATERS ...	1	1	25	7	2.13	43	63	82	"	"
TURNING LATHE ...	1	1	25	7	2.13	43	63	82	"	"
BRINE PUMPS ...	1	1	25	7	2.13	43	63	82	"	"
COOLING WATER PUMP ...	1	1	25	7	2.13	43	63	82	"	"
FAN FOR DONKEY BOILER ...	1	1	25	7	2.13	43	63	82	"	"
GALLEY STIRRING MACH. ...	2	1	4	7	0.85	4	22	90	"	"
FAN ...	1	1	4	7	0.85	4	22	90	"	"

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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.

Dansk Elektricitetscompagni
A. P. Møller

Electrical Engineers.

Date 30 - 3 - 1932

COMPASSES.

Distance between electric generators or motors and standard compass 8 m.

Distance between electric generators or motors and steering compass 7 m.

The nearest cables to the compasses are as follows:

A cable carrying 1/4 Ampères 8" feet from standard compass 8" feet from steering compass.

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

A cable carrying 10 Ampères 16 feet from standard compass 15 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.

FR. ODENSE STAALSKIDSVÆRKT
VED A. P. MØLLER

John Møller Andersen

Builder's Signature. Date 30-3-32.

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 under special survey and in accordance with the Society's Rules, the approved plan as corrected and the requirements contained in the Secretary's letter E of the 16th December 1931.

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

On completion the whole installation was tested under full power working conditions as required by the Rules 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 Electric Light

Total Capacity of Generators 252.772 Kilowatts.

The amount of Fee ... 14.678.80

Travelling Expenses (if any) £

Committee's Minute FRI. 8 APR 1932

Assigned Elec. Light

Im. 1128. - Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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