

Rpt. 13.

REPORT ON ELECTRIC FITTINGS.

No. 8581.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 22nd June 1931 When handed in at Local Office 24th June 1931 Port of Copenhagen Received at London Office 27 JUN 1931

No. in Survey held at Nakskov Date, First Survey 27/3 1931 Last Survey 19th June 1931
Reg. Book. 91530 on the Ste. Trin L. Motor vessel "Muiran" (Number of Visits 12)

Built at Nakskov By whom built 9/5 Nakskov Skibvaerk Yard No. 43 Tons { Gross 3113.00
Net 1739.32
When built 1931
Owners 9/5 Det Ostasiatisk Kompagni Port belonging to Copenhagen
Electric Light Installation fitted by 9/5 Nakskov Skibvaerk Contract No. ✓ When fitted 1931
Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution 2 conductors insulated system ✓

Pressure of supply for Lighting 220 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, 3 main generators ✓, 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 forward end of the motor room ✓

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 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 generators: a 266 pole circuit breaker with overload & reverse current trip and equalizer switch as per Sect. 3, par. 3.9 (f)

Outgoing circuits: a 266 pole linked switch and a fuse on each pole ✓

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 1 set of earth lamps. 1 voltmeter fitted with a 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 *5 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 *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, supported by clips in tween deck space secured by steel plates, when necessary laid in steel tubes.*
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 *unit is placed in a house on the boat deck, aft of the engine casing; a switch over is fitted on the switch board for lights in the same compartment. Generator driven by a 17 HP 2 cyl. crude oil engine with gas bill.*

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 *None*, whether fixed or portable *yes*, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *None*, 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	66	220	300	400	3 2 cyl. Diesel oil engine	crude oil	above 150° F.
AUXILIARY								
EMERGENCY	1	10	220	45.5	1000	a 17 HP crude oil engine (2 cyl. gas bill)	- " -	- " -
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return.)	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Mm.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR	2	2x95	19	2.52	300	296	15	india rubber	lead covered	
EQUALISER CONNECTIONS		45	19	2.52			7.5	- " -	steel wire armoured.	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR	1	16	7	1.70	45.5	49	5	- " -	same laid in steel tubes or secured by steel plates	
ROTARY TRANSFORMER MOTOR GENERATOR										
ENGINE ROOM	1	6	7	1.05	16.5	29	9	- " -	- " -	
BOILER ROOM										
AUXILIARY SWITCHBOARDS FOR LIGHT	1	35	19	1.53	60	77	74	- " -	- " -	
ACCOMMODATION OFFICERS PASSENGERS FORWARD	1	6	7	1.05	6.8	29	124	- " -	- " -	
WIRELESS	1	6	7	1.05	8	29	47	- " -	- " -	
SEARCHLIGHT										
MASTHEAD LIGHT										
SIDE LIGHTS										
COMPASS LIGHTS	1	2.5	7	0.67	1.5	15.5	56	- " -	- " -	
POOP LIGHTS										
CARGO LIGHTS										
ARC LAMPS										
HEATERS										

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return.)	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. Mm.	No.	Diameter.	In Circuit.	Rule.				
BALLAST PUMP	1	1	25	7	2.13	50	63	47	india rubber	lead covered	
MAIN BILGE LINE PUMPS									rubber	and steel wire armoured.	
GENERAL SERVICE PUMP										where necessary laid in steel tubes	
EMERGENCY BILGE PUMP											
SANITARY PUMP	1	1	10	7	1.35	30	38	51	- " -	- " -	
CIRC. SEA WATER PUMPS	1	1	4	7	0.85	17	22	43	- " -	- " -	
CIRC. FRESH WATER PUMPS											
SO ₂ COMPRESSOR	3	1	10	7	1.35	20	38	46	- " -	- " -	
FRESH WATER PUMP	1	1	2.5	7	0.67	7	15.5	53	- " -	- " -	
ENGINE TURNING GEAR	2	1	2.5	7	0.67	7	15.5	23	- " -	- " -	
ENGINE REVERSING GEAR											
COOLING WATER PUMP	2	1	70	19	2.10	100	124	60	- " -	- " -	
LUBRICATING OIL PUMPS											
OIL FUEL TRANSFER PUMP	1	1	4	7	0.85	17	22	40	- " -	- " -	
WINDLASS	1										
WINCHES, FORWARD	2	1	50	37	2.27	275	280	96	- " -	- " -	
WINCHES, AFT	4	1	120	37	2.03	215	235	102	- " -	- " -	
CRANES	2										
STEERING GEAR											
(a) MOTOR GENERATOR											
(b) MAIN MOTOR	1	1	10	7	1.35	20	38	132	- " -	- " -	
WORKSHOP MOTORS	3	1	4	7	0.85	14	22	42	- " -	- " -	
VENTILATING FANS											
OIL PURIFIERS	2	1	2.5	7	0.67	10	15.5	36	- " -	- " -	
SUPERCHARGING FANS	2	1	50	19	1.83	85	98	71	- " -	- " -	
WINCHES AMIDSH. 16 HP	2										
CRANES - " 10 HP	2										

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
NAKSKOV SKIBSVÆRFT

Electrical Engineers.

Date

Kenny Christensen

COMPASSES.

Distance between electric generators or motors and standard compass *12 1/2 in.*

Distance between electric generators or motors and steering compass *9 in.*

The nearest cables to the compasses are as follows:—

A cable carrying *1/4* Ampères *7"* ~~ft~~ from standard compass *7"* ~~ft~~ from steering compass.

A cable carrying *1/4* Ampères *11"* feet from standard compass *4* feet from steering compass.

A cable carrying *1/2* Ampères *15"* feet from standard compass *12* 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.

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Builder's Signature.

Date

Kenny Christensen

Is this installation a duplicate of a previous case 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 corrected) and the requirements contained in the Secretary's letter of date 25/2 1931.

The material used for the installation has been examined and found of good description throughout, and the workmanship is of good quality.

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

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

Total Capacity of Generators *208* Kilowatts.

The amount of Fee ... *14.667.94* When applied for, *25.6.19.31*

Travelling Expenses (if any) £ *—* When received, *13.7.31*

M. Hansen
Surveyor to Lloyd's Register of Shipping.

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

Committee's Minute *FRI. 3 JUL 1931*

Assigned *Elec. Light*

cm
29/6/31

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Im. 1.1.20.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)