

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-2 JUN 1934

Date of writing Report 19/5 1934 When handed in at Local Office 19 Port of Copenhagen
 No. in Survey held at Odense Date, First Survey 13/2 1934 Last Survey 16/5 1934
 Reg. Book. 41775 on the the p. "TARONGA" (Number of Visits 10)
 Tons { Gross 7002.76
 Net 4245.47
 Built at Odense By whom built Odense Haabkrovsøft Yard No. 50 When built 1934
 Owners DE NORSKE AFRIKA OG AUSTRALIE LINIE Port belonging to Tinsberg
 Electric Light Installation fitted by Dansk Elektricitetskompani Contract No. When fitted 1934
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two conductor insulated system
 Pressure of supply for Lighting 220 volts, Heating 220 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
 Position of Generators placed in the motor room; 1 off port, 2 off starboard 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, forward end, at workshops
 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: One 286 pole circuit breaker with overload-reversed current trip, single pole equalizer switch as per Rule 3, par. 3 A (f). For outgoing circuits: One 286 pole linked switch and a fuse on each pole.
 Instruments on main switchboard 7 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 2 sets of earth lamps, 1 Voltmeter fitted with 2 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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Lloyd's Register Foundation

003217-003222-0145 12

Reporting of the Electrical Installation deals with a Cpn 12486 Pp. 13.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT			Revs. per Min.	DRIVEN BY		WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.				Fuel Used.	Flash Point of Fuel.
MAIN	2	133	220	605	320	4-cyl Diesel engine			150°F
EMERGENCY	1	100	220	455	320	3-cyl " " " "			
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	2	620	61	2.54	302.5	323	10-50	india rubber	lead covered
EQUALISER CONNECTIONS	1	310	61	2.54			8-25	"	and
EMERGENCY GENERATOR	2	400	37	2.62	227.5	245	40	"	she was covered
EMERGENCY CONNECTION	1	200	37	2.62			20	"	
ROTARY TRANSFORMER	None								
ENGINE ROOM	1	10	7	1.35	25	38	8	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
FOR LIGHT	1	50	19	1.83	98	98	60	"	"
NAVIGATION	1	25	7	0.67	3	15.5	134	"	"
ACCOMMODATION									
DECKHOUSE I	1	25	7	2.13	40	63	80	"	"
" " II	1	10	7	1.70	30	48.7	40	"	"
AFT	1	10	7	1.35	25	38	164	"	"
WIRELESS	1	10	7	1.35	3	38	70	"	"
SEARCHLIGHT	1	15	1	1.38	14	10	150	"	"
MASTHEAD LIGHT	1	15	1	1.38	14	10	16	"	"
SIDE LIGHTS	1	15	1	1.38	14	10	8	"	"
COMPASS LIGHTS	1	15	1	1.38	14	10	200	"	"
POOP LIGHTS	1	15	1	1.38	14	10		"	"
CARGO LIGHTS									
ARC LAMPS									
HEATERS (BAKING OVEN)	1	10	7	1.70	45	48.7	70	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	95	19	2.52	110	148	62	india rubber	lead covered
MAIN BILGE LINE PUMPS	2	1	10	7	1.70	40	48.7	70-66	rubber and she was	
DECK TANK	1	1	50	19	1.83	75	98	56	"	covered
GENERAL SERVICE PUMP I	1	1	25	7	2.13	50	63	84	"	
DECK TANK	2	1	10	7	1.35	23	38	22-20	"	
EMERGENCY BILGE PUMP II	1	1	95	19	2.52	135	148	44-48	"	
FIRE AND	1	1	25	7	2.13	52	63	37	"	
SANITARY PUMPS	2	1	6	7	1.05	10	28.6	71-74	"	
CIRC. SEA WATER PUMPS	2	1	95	19	2.52	135	148	54	"	
CIRC. FRESH WATER PUMPS	1	1	25	7	2.13	52	63	37	"	
CO2 COMPRESSOR	2	1	10	7	1.70	40	48.7	79	"	
FRESH WATER PUMP	1	1	16	7	1.70	40	48.7	79	"	
ENGINE TURNING GEAR	2	1	200	37	2.62	217	245	64-69	"	
ENGINE REVERSING GEAR	1	1	35	19	1.83	67	77.6	27	"	
LUBRICATING OIL PUMPS	1	1	150	37	2.27	198	205	180	"	
OIL FUEL TRANSFER PUMP	1	1	50	19	1.83	115	115	108-88	"	
WINDLASS	2	1	150	37	2.27	198	205	144-144	"	
WINCHES, FORWARD	2	1	50	19	1.83	115	115	108-88	"	
WINCHES, AFT	2	1	150	37	2.27	198	205	150-132	"	
STEERING GEAR										
(a) MOTOR GENERATOR	1	2	25	7	2.13	68	102	200	"	
(b) MAIN MOTOR	1	1	6	7	1.05	14	28.6	100	"	
WORKSHOP MOTOR	1	1	6	7	1.05	14	28.6	100	"	
VENTILATING FANS										
WINCHES ANTI-TURN, 25H	2	1	95	19	2.52	170	195	48	"	
WARPING WINCH	1	1	70	19	2.10	118	124	178	"	
OIL PURIFIERS	3	1	2.5	7	0.67	10	15	12-12-30	"	
COOLING WATER PUMP	1	1	2.5	7	0.67	6	15	71	"	
FUEL OIL CIRCUL. PUMP	2	1	2.5	7	0.67	9	15	40	"	

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

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *7 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, supported by galv.*

steel clips, when necessary let them hiker or protected by steel plate coverings

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 *no*. 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 *✓*

are their connections made as per Rule *✓*

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 *✓*

how are the cables led

where are the controlling switches situated *✓*

Searchlight Lamps, No. of *✓*, whether fixed or portable *✓*, are their fittings as per Rule *✓*

Are Lamps, other than searchlight lamps, No. of *✓*, 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 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 *✓* 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 *✓*

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 *✓*

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.

for Dansk Elektricitetscompagni
Lyngby.

Electrical Engineers.

Date *25-5-1934.*

COMPASSES.

Distance between electric generators or motors and standard compass ∞

Distance between electric generators or motors and steering compass ∞

The nearest cables to the compasses are as follows:—

A cable carrying *3* Amperes *14* feet from standard compass *2* feet from steering compass.

A cable carrying *1/4* Amperes *2* feet from standard compass *8* feet from steering compass.

A cable carrying *1/10* Amperes *8"* feet from standard compass *8"* 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 STAALSKIBBYGGERI
VED A. H. MÖLLER

H. Meirner

Builder's Signature.

Date *30.5.34*

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 & power installation herein described has been fitted in accordance with the Society's Rules, and - with minor alterations indicated on the plan - the approved plan and the Secretary's letter E dated 9/12 1933. On the trial trip, under full speed, the proposed 11.5 hp motor for the steering gear proved to be too small, wherefore it was replaced by a 20 hp motor and the corresponding cables increased by 10 mm². On the following trial trip the gear worked satisfactorily.

The material used in the installation is of good description throughout and the workmanship is good.

After completion the whole installation was tested as per Rules and found in order.

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

Total Capacity of Generators *366* Kilowatts.

The amount of Fee ... *£. 910.56* { When applied for, *1.6.19.34*
Travelling Expenses (if any) £ : : *11.6.19.34* *TD.*

Chiliff.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 12 JUN 1934

TUE. 24 JUL 1934

Assigned

Elec. Lt.



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