

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

27 DEC 1930

Date of writing Report 22nd Dec 1930 When handed in at Local Office 23rd Dec 1930 Port of GöteborgNo. in Survey held at Göteborg Date, First Survey 12th Nov. Last Survey 10th Dec 1930Reg. Book. (Supplement) 91721 on the Twin Sc. Motorvessel "NORDANVIK" (Number of Visits 9)Tons { Gross 8233
Net 4808Built at Göteborg By whom built AB. Götaverken Yard No. 438 When built 1930Owners Norrköpings Rederi AB. Port belonging to NorrköpingElectric Light Installation fitted by AB. Götaverken Contract No. 438 When fitted 1930Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two-Wire-System

Pressure of supply for Lighting 110 volts, Heating - volts, Power 110 volts.Direct or Alternating Current, Lighting Direct Power DirectIf 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 Yesare 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 inseries with each shunt field YesAre 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 YesPosition of Generators On a platform aft in the motorroomis 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 Yesare their axes of rotation fore and aft YesEarthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers andtheir respective generators in metallic contact YesMain Switch Boards, where placed on the same platform as the generators

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 Yesare they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotectedwoodwork 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 ofpermanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts insulated from the slabwith mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yesand is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live partsYes, accessibility of all parts Yes, absence of fuses on back of board -, proportion of omnibusbars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches YesMain Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For each generator:A double pole circuit-breaker with overload and reversed current trips and a single-pole equalizer switch.For each outgoing circuit: A double pole linked switch and a fuse^{at} each pole.Instruments on main switchboard 3 ammeters 2 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 ohm meter fittedwith commutators for both polesSwitches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YesJoint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes

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single and twin ones
Cables: Single, twin, concentric, or multicable 1 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 2 v. + 3 pr. cent for lighting
2 v. + 5 " " " power
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 -

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 supported by metal-clips. All power cables lead-covered and armoured. Lighting-cables lead-covered in cabins. For the rest lead-covered and steel wire plaited or armoured.

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 main cables. Joints in section cables as pr rule.

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 -

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 -

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 -

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 contained in

gastight fittings, how are the cables led

in gastight tubing,

where are the controlling switches situated outside of dangerous space

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

Arc 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 all except the turning motors

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

-, 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 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	50	110	455	400	1 diesel engine	Dieseloil	Above 150° F.
AUXILIARY ...		"	"	"	400	1 steam	"	
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) <u>xxx Met.</u>	Insulated with	HOW PROTECTED.	
	No. per Pole.	Total Effective Area per Pole Sq. <u>mm</u> /m	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR ...	3	285	19	2.52	455		10-12	Rubber	Lead covered and steel armoured	" "
EQUALISER CONNECTIONS ...	3	285	19	2.52			10-12	"	" " "	" "
AUXILIARY GENERATOR ...										
EMERGENCY GENERATOR ...										
ROTARY TRANSFORMER MOTOR GENERATOR ...										
ENGINE ROOM ...										
BOILER ROOM ...	1	4	7	0.86	20		10	"	" " "	" "
AUXILIARY SWITCHBOARDS ...										
ACCOMMODATION aft. starb.	1	6	7	1.05	22		50	"	" " "	" "
" " port	1	6	7	1.05	20		50	"	" " "	" "
" midships	1	35	19	1.53	40		165	"	" " "	" "
" forward	1	10	7	1.35	8		100	"	" " "	" "
Lanterns	1	4	7	0.86	2.5		185	"	" " "	" "
WIRELESS ...	1	25	7	2.9	40		185	"	" " "	" "
SEARCHLIGHT ...										
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.5		165-105	"	" " "	" "
SIDE LIGHTS ...	1	1.5	1	1.38	0.5		40-40	"	" " "	" "
COMPASS LIGHTS ...	1	1.5	1	1.38	0.25		20	"	" " "	" "
POOP LIGHTS ...	1	1.5	1	1.38	0.5		215	"	" " "	" "
CARGO LIGHTS ...										
ARC LAMPS ...										
HEATERS ...										

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) <u>xxx Met.</u>	Insulated with	HOW PROTECTED.	
		No. Per Pole.	Total Effective Area per Pole Sq. <u>mm</u> /m	No.	Diameter.	In Circuit.	Rule.				
BALLAST PUMP ...											
MAIN BILGE LINE PUMPS ...											
GENERAL SERVICE PUMP ...											
EMERGENCY BILGE PUMP ...											
SANITARY PUMP ...											
CIRC. SEA WATER PUMPS ...											
CIRC. FRESH WATER PUMPS ...											
AIR COMPRESSOR ...											
FRESH WATER PUMP ...											
ENGINE TURNING GEAR ...	2	1	4	7	0.86	25		30-34	Rubber	Lead Covered and steel armoured	" "
ENGINE REVERSING GEAR ...											
LUBRICATING OIL PUMPS ...	2	2	190	19	2.52	315		12-14	"	" " "	" "
OIL FUEL TRANSFER PUMP ...											
WINDLASS ...											
WINCHES, FORWARD ...											
WINCHES, AFT ...											
STEERING GEAR—											
(a) MOTOR GENERATOR ...											
(b) MAIN MOTOR ...											
WORKSHOP MOTOR ...	1	1	4	7	0.86	25		40	"	" " "	" "
VENTILATING FANS ...	2	1	2.5	1	1.78	16		25-35	"	" " "	" "
Fuel oil separator	1	1	2.5	1	1.78	16		26	"	" " "	" "
Refrigerator	1	1	50	19	1.83	87		30	"	" " "	" "
Cooling W. pump	1	1	2.5	1	1.78	8		30	"	" " "	" "
Lubr. oil separator	1	1	2.5	1	1.78	16		24	"	" " "	" "



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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.

AB. GÖTAVERKEN

Electrical Engineers.

Date XII. 22. 30

COMPASSES.

Distance between electric generators or motors and standard compass About 30 met.

Distance between electric generators or motors and steering compass " 30 "

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass feet from steering compass.

A cable carrying Ampères feet from standard compass feet from steering compass.

A cable carrying Ampères feet from standard compass feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted.

The maximum deviation due to electric currents was found to be degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

AKTIEBOLAGET GÖTAVERKEN

Einst. J. Medus

Builder's Signature.

Date XII. 22. 30

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.)

This Electric installation has been fitted on board this vessel under my inspection and has been tested and found satisfactory.

The workmanship is good.

All the Rule requirements have been complied with.

See Light

21. 57/31

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Total Capacity of Generators 100 Kilowatts.

The amount of Fee ... 573.30 : When applied for, 23rd Dec 1920.

Travelling Expenses (if any) £ : When received, 19 1 31 1931

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 JAN 1931

Assigned



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