

RETAIN

MAY 24 1938

Rpt. 13.

No. 269180

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

MAY 24 1938

Date of writing Report 17-5-1938. When handed in at Local Office 19 Port of R'dam.

No. in Survey held at ROTTERDAM. Date, First Survey 25.1.38 Last Survey 5-2-1938
 Reg. Book. on the M.S. "Clea" (Number of Visits 9)

Gross 801.8
 Net 474.5

Tons

Built at Rotterdam. By whom built Rott. Droogd. Mij. Yard No. 198. When built 1937-'38.

Owners Ned. Ind. Tankst. Mij. Port belonging to 's Gravenhage.

Electric Light Installation fitted by N.V. van Rietschoien & Houwens Contract No. When fitted '37-'38.

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution

Pressure of supply for Lighting 110. volts, Heating 110. volts, Power 110. volts.

Direct or Alternating Current, Lighting direct current Power direct current.

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 temperature rise 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 no. is an adjustable regulating resistance fitted in series with each shunt field Yes.

Have certificates of test results for machines under 100 kw. been submitted and approved Yes.

Have certificates for generators under 100 kw. been supplied and approved 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

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

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 Engine room (Starboard side)

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 Yes.

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.

is it of an approved type 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. is the non-hygroscopic insulating material of an approved

type 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. temperature rise of

omnibus bars Yes. individual fuses to voltmeter, pilot or earth lamp Yes. are moving parts of switches alive in the

"off" position No. are all screws and nuts securing connections effectively locked Yes. are any fuses fitted on the live side of

switches no. Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

dynamo and circuits with double pole switch. Yes.

Are turbine driven generators fitted with emergency trip switch as per rule Yes. Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material Yes. Instruments on main switchboard 2. ammeters 2.

volumeters synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

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

earth lamps. Switches, Circuit Breakers and Fusible Cut-outs, Yes. have the reversed

Do these comply with the requirements of the Rules Yes. are the fusible cutouts of an approved type Yes.

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current protection devices been tested under working conditions — are all fuses labelled as per rule 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 core are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules Yes.

If the cables are insulated otherwise than as per Rule, are they of an approved type — **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load — **Cable Sockets,** are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets Yes. **Paper Insulated and Varnished Cambric Insulated Cables.**

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound —, or waterproof insulating tape — **Cable Runs,** are the cables sized 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. are cables laid under machines or floorplates Yes. if so, are they adequately protected Yes. in iron conduit

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit Yes.

Support and Protection of Cables, state how the cables are supported and protected either direct on beams or on perfor. plates.

If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves — If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII Yes.

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements Yes.

Joints in Cables, state if any, and how made, insulated, and protected

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 or hard wood.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas only to earth, switch and fuse boxes as big as possible. 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 —

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. (telephone) are they ventilated 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 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

are all fittings suitably ventilated —, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

Heating and Cooking Appliances, are they constructed and fitted as per Rule —, are air heaters constructed and fitted as per Rule

Searchlight Lamps, No. of one connection whether fixed or portable —, 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 — and have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing — have certificates for all motors for

essential services been supplied and approved. **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. are all fuses of the filled cartridge type Yes. are they of an approved type Yes.

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes. are they suitably stored in dry situations 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	16	110.			Steam engine.		
AUXILIARY	1	16	110.			Diesel motor.		
EMERGENCY								
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 Nominal Area per Pole Sq. ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1.	0.1478.	37.	0.72	145.	149.7.	36.		95 f.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	1.	0.1478.	37.	0.72	145.	149.7.	60.		95 f.
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS		0.06000	19.	0.64	~ 70.	76.3	200.		35 f.
Portable conn. a. deck		0.01462	7.	0.52	~ 20.	38.7	160.		10 f.
Navigation		0.01462	7.	0.52	10.	38.7	540.		10 f.
ACCOMMODATION									
Foreship (lighting)	1.	0.02214	7.	0.64	12.	48.4	1000.		16 f.
Midship	1.	0.03960	19.	0.62	51.	62.6	540.		26 f.
Aft	1.	0.02214	7.	0.64	37.	48.4	120.		16 f.
Engine room	1.	0.01462	7.	0.52	39.	38.7	60.		10 f.
WIRELESS	1.	0.02214	7.	0.64	~ 40.	48.4	600.		16 f.
SEARCHLIGHT	1.	0.06000	19.	0.64		76.3	1000.		35 f.
MASTHEAD LIGHT	1.	0.001943	1.	0.55	0.4	9.8	500.		1.5 f.
SIDE LIGHTS	1.	0.001943	1.	0.55	0.4	9.8	120.		1.5 f.
COMPASS LIGHTS	1.	0.001943	1.	0.55	0.15	9.8	72.		1.5 f.
POOP LIGHTS	1.	0.001943	1.	0.55	0.4	9.8	750.		1.5 f.
CARGO LIGHTS	1.	0.001943	1.	0.55	2.	9.8	500.		1.5 f.
HEATERS									

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 Nominal Area per Pole Sq. ins.	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	1.	1.	0.1168	19.	0.72	61.		100.		50 f.
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1.	1.	0.007005	7.	0.36	17.6		75.		4 f.
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS	1.	1.	0.007005	7.	0.36	12.5		100.		4 f.
Grinding stone	1.	1.	0.1546	7.	0.44	24.5		25.		6 f.
Drilling mach.	1.	1.	0.1046	7.	0.44	17.7		25.		6 f.
Lathe	1.	1.	0.003217	7.	0.265	13.8		25.		2.5 f.
Trimming pump	1.	1.	0.007005	7.	0.36	17.		120.		4 f.
Clear view screen	1.	1.	0.001943	1.	0.60	0.6		45.		1.5 f.

The Electrical Equipment is installed in accordance with the approved plans.
All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
The foregoing is a correct description.

M. K. K. K.
Electrical Engineers, N.V.

Electrical Engineers.

Date _____

COMPASSES.

Minimum distance between electric generators or motors and standard compass

clear view screen ~ 8 feet.
clear view screen ~ 6 feet.

Minimum distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying	0,15	Ampères	1.	feet from standard compass	4.	feet from steering compass.
A cable carrying	0,4	Ampères	6.	feet from standard compass	6.	feet from steering compass.
A cable carrying	20	Ampères	20.	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 every course in the case of the standard compass, and 0 degrees on every course in the case of the steering compass.

DE ROTTERDAMSCH E DROOGDOEK MIJ.

Directeur

J. Knappe

Builder's Signature.

Date 17-5-'38.

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, etc. THIS INSTALLATION HAS BEEN
FITTER IN ACCORDANCE WITH THE APPROVED PLANS, SOCIETY'S RULES AND
SECRETARY'S LETTER, MATERIAL TESTED AS REQUIRED AND WORKMANSHIP GOOD
THE WHOLE WAS FOUND IN A GOOD WORKING CONDITION WHEN TRIED AND
MERITS IN MY OPINION THE APPROVAL OF THE COMMITTEE.

Noted
26/5/38

Total Capacity of Generators ~~10~~ ³² Kilowatts. *La. 1/6/38.*

The amount of Fee ... *£ 272.* : When applied for, *£ 225 19 38*
Travelling Expenses (if any) £ : : When received, *£ 73 6 38*

H. F. Ochoa
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 31 MAY 1938

Assigned

See Rot. 76.26918



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Foundation