

Rpt. 13.

No. 15280C

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report *23rd May 1938* When handed in at Local Office *19* Port of *Amsterdam*
 No. in Survey held at *Amsterdam* Date, First Survey *19th March* Last Survey *20th May 1938*
 Reg. Book. on the *No. 7 "OPALIA"* (Number of Visits *11*)
 Built at *Amsterdam* By whom built *Sted. Dok Mij.* Yard No. *67* When built *1938*
 Owners *Anglo Saxon Petroleum Co Ltd* Port belonging to *London*
 Electric Light Installation fitted by *Meijnsen & Co N.Y.* Contract No. When fitted *1938*
 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 machines over 100 kw. been inspected by the Surveyors during manufacture and testing *✓*

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. ✓*

Are the lubricating arrangements of the generators as per Rule *Yes. ✓*

Position of Generators *In Engine room on 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 Engine room on 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 *✓*

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 *✓*, 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 *Double pole handle quick circuit switches. ✓*

Are turbine driven generators fitted with emergency trip switch as per rule *✓* Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material *Yes. ✓*

Instruments on main switchboard *1* ammeters *1* voltmeters *✓* 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 *Two lamps in series connected with earth. ✓*

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules *Yes. ✓* are the fusible cutouts of an approved type *Yes. ✓* have the reversed *✓*

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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 *Self types* 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 *3 1/4 for light 4 1/4 for power ✓* **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 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 ✓* are cables laid under machines or floorplates *Yes ✓* if so, are they adequately protected *Yes ✓*

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit *Yes ✓* **Support and Protection of Cables,** state how the cables are supported and protected *Steel plates and fixed with galvanized iron clips and brass screws ✓*

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 *In joints ✓*

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 *✓* **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 *✓* are they ventilated 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 *None ✓*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *By gas tight ✓*

Locke day Boxes ✓ *in bulkheads ✓* how are the cables led *✓*

where are the controlling switches situated *on bridge deck ✓*

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

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 ✓* whether fixed or portable *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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	1	16	110	145	390	Steam Engine			
AUXILIARY ...	1	16	110	145	390	Diesel Engine	Diesel Oil	Above 150° F.	
EMERGENCY ...									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT, AMPERES.		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	95 mm ²	37	1.01 mm	145	152	72	Rubber	Lead Steel wire
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR ...	1	95 mm ²	37	1.01 mm	145	152	26		" "
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR ...									
ENGINE ROOM ...	1	35 mm ²	19	1.62 mm	70	83	210		" " "
BOILER ROOM ...									" " "
AUXILIARY SWITCHBOARDS									
Lighting midship	1	16 mm ²	7	1.7 mm	35	46	540		" " "
ACCOMMODATION									
Lighting eng room	1	10 mm ²	7	1.35 mm	34	37	30		" " "
" " "	1	16 mm ²	7	1.7 mm	34	46	175		" " "
" " sockets	1	10 mm ²	7	1.35 mm	24	37	175		" " "
" " " "	1	10 mm ²	7	1.35 mm	14	37	580		" " "
" " " "	1	16 mm ²	7	1.7 mm	10	46	900		" " "
WIRELESS	1	10 mm ²	7	1.7 mm	40	46	620		" " "
SEARCHLIGHT	1	35 mm ²	19	1.62 mm	60	83	970		" " "
MASTHEAD LIGHT	1	15 mm ²	7	0.68 mm	1	13	440		" " "
SIDE LIGHTS	1	15 mm ²	7	1.38 mm	1	70	60		" " "
3 COMPASS LIGHTS	1	15 mm ²	7	1.38 mm	0.5	70	60		" " "
POOP LIGHTS	1	15 mm ²	7	1.38 mm	0.5	70	60		" " "
4 CARGO LIGHTS on Mast	1	15 mm ²	7	1.38 mm	2	70	430		" " "
HEATERS									

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT, AMPERES.		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										
ENGINE TURNING GEAR	1	1	70 mm ²	19	2.16 mm	61	124	125	Rubber Lead Steel wire	
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1	1	6 mm ²	7	0.87 mm	16	24	100	" " "	
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
3 WORKSHOP MOTOR	1	1	6 mm ²	7	1.05 mm	24	24	60		
1 VENTILATING FANS	1	1	4 mm ²	7	0.85 mm	16	18	160		
1 Separator	1	1	4 mm ²	7	0.85 mm	16	18	160		
Shore con.	1	1	95 mm ²	37	1.01 mm	140	152	175		

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.

MUNSSSEN & Co. N.V.

Electrical Engineers.

Date 15/5/38.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 250 feet ✓

Minimum distance between electric generators or motors and steering compass 244 feet ✓

The nearest cables to the compasses are as follows:—

A cable carrying 0.35 Ampères 1 feet from standard compass 1 feet from steering compass. ✓

A cable carrying 60 Ampères 12 feet from standard compass 10 feet from steering compass. ✓

A cable carrying 40 Ampères 12 feet from standard compass 10 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 Nil degrees on every course in the case of the standard compass, and Nil degrees on every course in the case of the steering compass.

NEDERLANDSCHE DOK Mij. N.V.

W. van

Builder's Signature.

Date 30 Mei 1938

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 Installation has been constructed under special Survey in accordance with the approved plan and Secretary letters. Installation tested under full loaded condition and found in order, and merits in my opinion the committee's approval.

Noted.

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Total Capacity of Generators 32 Kilowatts.

The amount of Fee ...

£276.00

When applied for,

4-6-1938

Travelling Expenses (if any) £

:

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When received,

16-6-38

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

FRI. 24 JUN 1938

See Ins. J.E. 15288



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