

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

15 DEC 1931

Received at London Office

Date of writing Report 9th Dec 1931 When handed in at Local Office 12th Dec 1931 Port of GöteborgNo. in Survey held at Göteborg Date, First Survey 8th Nov Last Survey 5th Dec 1931Reg. Book. 41763 on the Twin Screw Motorvessel "PAN GOTHIA" Tons { Gross 10409 Net 6225Built at Göteborg By whom built A.-B. Götaverken Yard No. 459 When built 1931Owners Rederi AB. Åse Port belonging to GöteborgElectric Light Installation fitted by A.-B. Götaverken Contract No. 459 When fitted 1931Is the Vessel fitted for carrying Petroleum in bulk YesSystem of Distribution Two wire systemPressure 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 YesGenerators, 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 in series 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 YesAre the lubricating arrangements of the generators as per Rule YesPosition of Generators Forward in the motor roomis the ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yesif 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 and their respective generators in metallic contact YesMain Switch Boards, where placed on a platform over the generatorsIf 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 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 of marble, is all insulation of high dielectric strength and of permanently high insulation resistance Yesif 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 Yesand is the frame effectively earthed Yes Are the fittings as per Rule regarding: — spacing or shielding of live parts Yesaccessibility of all parts Yes, absence of fuses on back of board yes, proportion of omnibus bars Yesindividual 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 meterfitted with 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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and are the cables insulated and protected as per Tables IV or V of the Rules **Yes**
2 V + 3 pr. cent for lighting
2 " + 5 " " " power
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load. 2 " + 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 maincables. 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**
in gastight tubing
where are the controlling switches situated **outside of dangerous spaces**
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 **no portable lamps supported for use in dangerous spaces.**

PARTICULARS OF GENERATING PLANT.										
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.			
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.		
MAIN ...	2	66	115	574	400	Diesel engine	Dieseloil	Above 150° F		
AUXILIARY ...					400	Steam engine	-	-		
EMERGENCY ...										
ROTARY TRANSFORMER										
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) met.	Insulated with	HOW PROTECTED.	
	No. per Pole.	Total Effective Area per Pole Sq. mm	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR ...	4	380	19	2.52	574		23	Rubber	Lead covered and steel armoured.	
EQUALISER CONNECTIONS ...	4	380	19	2.52	574		23	"	"	
AUXILIARY GENERATOR ...										
EMERGENCY GENERATOR ...										
ROTARY TRANSFORMER } MOTOR GENERATOR ...										
ENGINE ROOM ...	1	6	7	1.05	20		15	"	" " " "	
BOILER ROOM ...										
AUXILIARY SWITCHBOARDS ...										
Lanterns	1	2.5	1	1.78	2.5		202	"	" " " "	
ACCOMMODATION aft stb...	1	6	7	1.05	22		52	"	" " " "	
" " port	1	6	7	1.05	20		52	"	" " " "	
" midships	1	35	19	1.53	40		184	"	" " " "	
" forward	1	10	7	1.35	8		94	"	" " " "	
Branch circuit	1	1.5	1	1.38	6		-	"	" " " "	
WIRELESS ...	1	25	7	2.13	50		214	"	" " " "	
SEARCHLIGHT ...										
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.5		115-210	"	" " " "	
SIDE LIGHTS ...	1	1.5	1	1.38	0.5		40-40	"	" " " "	
COMPASS LIGHTS ...	1	1.5	1	1.38	0.5		20	"	" " " "	
POOP LIGHTS ...	1	1.5	1	1.38	0.5		250	"	" " " "	
CARGO LIGHTS ...										
ARC LAMPS ...										
HEATERS ...										
MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) met.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. mm	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	25	7	2.13	63		75-75	rubber	lead covered and steel armoured
ENGINE REVERSING GEAR ...	2	2	300	37	2.27	390		81-84	"	" " " "
LUBRICATING OIL PUMPS ...	1	3	210	19	2.17	390			"	" " " "
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	24		40	"	" " " "
VENTILATING FANS ...	3	1	2.5	1	1.78	16		32-40-28	"	" " " "
Lubr. oil separator	1	1	2.5	1	1.78	16		64	"	" " " "
Fuel " "	1	1	2.5	1	1.78	16		64	"	" " " "
Refrigerator	1	1	50	19	1.83	97.5		85	"	" " " "
Cooling w. pump	1	1	2.5	1	1.78	8		80	"	" " " "
Vapour extractor	1	1	6	7	1.05	33		80	"	" " " "
Thermotanks	2	1	10	7	1.53	17		60-112	"	" " " "

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.

A.-B. Götaverken

Electrical Engineers.

Date XII.9.31.

COMPASSES.

Distance between electric generators or motors and standard compass wireless rotary transformer 10 met.

Distance between electric generators or motors and steering compass 8 "

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
Cust. I. Medus

Builder's Signature.

Date XII.9.31.

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 & found satisfactory

The workmanship is good.

All the Rule requirements have been complied with.

Elec. Light

17/12/31

Total Capacity of Generators 132 Kilowatts.

The amount of Fee ... 12/ 609.42 : When applied for, 12/ 19.31

Travelling Expenses (if any) £ : When received, 14.1.1931

A. Sander
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 18 DEC 1931

Assigned Elec. Light

1m.12.28.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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