

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

8 MAY 1929

Date of writing Report 27<sup>th</sup> March 1929 When handed in at Local Office 4<sup>th</sup> May 1929 Port of GothenburgNo. in Survey held at Gothenburg Date, First Survey 22<sup>nd</sup> March Last Survey 25<sup>th</sup> April 1929Reg. Book  
(Supplement)  
9/334on the Twin Screw Motorvessel "NAGARA"

(Number of Visits.....)

Tons { Gross 6525  
Net 3980Built at Gothenburg By whom built AB. Götaverken Yard No. 416 When built 1929Owners AB. Svenska Ostasiatiska Kompaniet Port belonging to GothenburgElectric Light Installation fitted by AB. Götaverken Contract No. \_\_\_\_\_ When fitted 1929

System of Distribution Two-wire system

Pressure of supply for Lighting 110 volts, Heating cooking 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 Are the lubricating arrangements of the generators as per Rule Yes

Position of Generators At the port side of the motorroom

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 On a platform aft in the motorroom

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 of marble, 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 ---, 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: a double pole circuit-breaker with overload and reversed current trips and a single pole equalizer switch. For each outgoing circuit: A single pole switch and a fuse at each pole.

Instruments on main switchboard 8 ammeters 5 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-meters fitted with commutators for both poles

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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Foundation



and  
Cables: Single ~~are~~ 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 volt + 3 pr cent for lighting**  
**2 volt + 5 pr cent for 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 branch 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 **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 **---**  
**---**, 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 **---**

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 **---**

Lighting 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 **---**  
If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office **---**

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 ... ..	3	66	220	300	300	Dieselmotors	Dieseloil	Above 150° F.	
AUXILIARY ... ..									
EMERGENCY ... ..									
ROTARY TRANSFORMER	1	14	P.220 S.110	75 127	1650				

LIGHTING AND HEATING CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Conductors.	TOTAL Effective Area of each Conductor. Sq. Mm.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Met.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR... ..	2	190	19	2.52	300	70-60-50	Rubber	Lead-covered and steel-armoured.
	EQUALISER CONNECTIONS	2	190	19	2.52	300	10-8-10	"	"
	AUXILIARY GENERATOR								
	<del>ROTARY TRANSFORMER</del>	1	25	7	2.13	75	10	"	"
	ROTARY TRANSFORMER...	1	70	19	2.17	127	10	"	"
	AUXILIARY SWITCHBOARDS ...								
	ENGINE ROOM ... ..	1	6	7	1.05	16	10	"	"
	BOILER ROOM ... ..								
	ACCOMMODATION ... ..								
	Light distr. board I	1	6	7	1.05	9	140	"	"
	" " " II	1	6	7	1.05	20	50	"	"
	" " " III	1	16	7	1.71	20	120	"	"
	" " " IV	1	2.5	1	1.78	5	130	"	"
	" " " V	1	16	7	1.71	19	170	"	"
	" " " VI	1	6	7	1.05	8	80	"	"
	" " " VII	1	10	7	1.35	18	100	"	"
	Secondary battery	1	16	7	1.71	45	90	"	"
	Cooking	1	6	7	1.05	23	40	"	"
	WIRELESS ... ..	1	6	7	1.05	20	130	"	"
	SEARCHLIGHT ... ..	1	10	7	1.35	40	70	"	"
	MASTHEAD LIGHT...	1	1.5	1	1.38	1	120-190	"	"
	SIDE LIGHTS ... ..	1	1.5	1	1.38	1	40-40	"	"
	COMPASS LIGHTS ... ..	1	1.5	1	1.38	1	20	"	"
	POOP LIGHTS ... ..	1	1.5	1	1.38	1	130	"	"
	CARGO LIGHTS ... ..	1	1.5	1	1.38	1.5	40	"	"
	ARC LAMPS ... ..								
	HEATERS ... ..								

MOTOR CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Mm.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) MET.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP ... ..	1	25	7	2.13	70	56	Rubber	Lead covered and steel armoured.
	MAIN BILGE LINE PUMPS ...								
	GENERAL SERVICE PUMP ...	1	10	7	1.35	39	56	"	"
	EMERGENCY BILGE PUMP ...								
	SANITARY PUMP ... ..								
	CIRC. SEA WATER PUMPS ...	2	50	19	1.83	98	80	"	"
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR ... ..	1	3x95	19	2.52	475	60	"	"
	FRESH WATER PUMP ... ..								
	ENGINE TURNING GEAR ...	2	6	7	1.05	31	36-38	"	"
	ENGINE REVERSING GEAR ...								
	LUBRICATING OIL PUMPS ...	2	50	19	1.83	116	80	"	"
	OIL FUEL TRANSFER PUMP	1	25	7	2.13	59	22	"	"
	WINDLASS ... ..	2	70	19	2.17	150	240	"	"
	WINCHES, FORWARD ... ..	2	70	19	2.17	134	170	"	"
	WINCHES, AFT ... ..	2	70	19	2.17	134	100	"	"
	STEERING GEAR—								
	(a) <del>MAIN MOTOR</del> ...								
	(b) MAIN MOTOR ... ..	2	50	19	1.83	118	150-150	"	"
	WORKSHOP MOTOR ... ..	1	2.5	1	1.78	12	84	"	"
	VENTILATING FANS ... ..								
	Lubr. oil separator	1	1.5	1	1.38	8	44	"	"
	Oil fuel separator	1	2.5	1	1.78	12	24	"	"
	Cooling water pump	2	2.5	1	1.78	12-10	86-50	"	"
	Refrigerator	1	10	7	1.35	39	50	"	"
	Bath water pump	1	1.5	1	1.38	8	54	"	"
	Vegetable oil pump	1	25	7	2.13	59	22	"	"

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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.

By AB.Siemens and AB.Göta-Verken, Gothenburg

Electrical Engineers.

Date 27.4.29

#### COMPASSES.

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

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

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.

*Euseb Heders*

Builder's Signature.

Date 4 May 1929

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 our inspection and has been tested and found satisfactory.*

*The workmanship is good.*

*All the Rule requirements have been complied with.*

*It is submitted that  
this vessel is eligible for  
THE RECORD. ELEC. LIGHT*

*YRM*

*17.5.29*

Total Capacity of Generators 198 Kilowatts.

The amount of Fee ... £ 662.48

When applied for,

6 May 1929

Travelling Expenses (if any) £

When received,

27.5.29

Committee's Minute

Assigned

*Elec Light*

*V. Whilow*

Surveyor to Lloyd's Register of Shipping.



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