

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 12th Dec. 1934 When handed in at Local Office 15th Dec. 1934 Port of Gothenburg Received at London Office 17 DEC 1934

No. in Survey held at Gothenburg Date, First Survey 2nd Nov. Last Survey 7th Dec. 1934

Reg. Book.
SUPPLEMENT
89464

on the M/S "GRENA" (Number of Visits 11)

Tons { Gross 8117.28
Net 4890.63

Built at Göteborg By whom built A/B Götaverken Yard No. 483 When built 1934.

Owners J. Ludwig Mowinckels Rederi Port belonging to Bergen

Electric Light Installation fitted by Aktiebolaget Götaverken Contract No. 483 When fitted 1934.

Is 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 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 over 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 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 steel, 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 - 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, 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 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 ohmmeter

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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Cables: and Single twisted concentric or multifilar are the cables insulated and protected as per Tables IV, V, XI or XIII of the Rules yes.
2 v. + 3 per cent for lighting power

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 2 v. + 5 "

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 per 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 turning water.

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

yes, 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	1	55	115	478	400	Diesel engine	Diesel oil	Above 150° F.
EMERGENCY	1	55	115	478	400	Steam	"	"
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		Approximate Length (Lead and Return) per Met.	Insulated with	HOW PROTECTED
	No. per Pole	Total Effective Area per Pole Sq. Centim.	No.	Diameter	In Circuit	Rule			
MAIN GENERATOR	3	285	37	1.81	478	256	32-22	rubber	lead covered and steel armoured
EQUALISER CONNECTIONS	3	285	37	1.81	478		32-22	rubber	"
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (MOTOR)									
ENGINE ROOM	1	6	7	1.05	28	30	3	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
...									
Lanterns	1	2.5	7	0.67	2	15	186	"	"
ACCOMMODATION									
aft starb.	1	10	7	1.35	20	38	36	"	"
" Port	1	6	7	1.05	14	31	23	"	"
midships	1	50	19	1.83	53	92	170	"	"
forward	1	10	7	1.35	10	38	95	"	"
WIRELESS	1	16	19	1.04	15		225	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	1.5	1	1.38	0.4	10	100-190	"	"
SIDE LIGHTS	1	1.5	1	1.38	0.4		50-50	"	"
COMPASS LIGHTS	1	1.5	1	1.38	0.4		20	"	"
POOP LIGHTS	1	1.5	1	1.38	0.4		240	"	"
CARGO LIGHTS									
ARO LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION	No. of Motors	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		Approximate Length (Lead and Return) per Met.	Insulated with	HOW PROTECTED
		No. Per Pole	Total Effective Area per Pole Sq. Centim.	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	35	19	1.53	85	80	95	rubber	"
ENGINE REVERSING GEAR & COOLING WATER										
LUBRICATING OIL PUMPS	2	2	300	37	2.26	375		24-23	"	"
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	26.3		74	"	"
VENTILATING FANS	2	1	2.5	7	0.67	17.6		60-16	"	"
Fuel oil circ. pump	1	1	2.5	7	0.67	10		50	"	"
Refrigerator	1	1	25	7	2.13	66	64	49	"	"
Cooling water pump	1	1	2.5	7	0.67	17	17	34	"	"
Fuel oil separator	1	1	2.5	7	0.67	17		18	"	"
Lubr. oil	1	1	2.5	7	0.67	17		11	"	"

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.

ANTIEBOLAGET GÖTAVERKEN

H. G. Hamman

Electrical Engineers.

Date XII. 8. 34.

COMPASSES.

Distance between electric generators or motors and standard compass About 13 met.

Distance between electric generators or motors and steering compass 11

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.

ANTIEBOLAGET GÖTAVERKEN

H. G. Hamman

Builder's Signature.

Date XII. 8. 34.

Is this installation a duplicate of a previous case Yes If so, state name of vessel 1/2 "Brajara"

General Remarks (State quality of workmanship, opinions as to class, etc.)

This electric installation has been fitted onboard under my inspection and has been tested and found satisfactory.

The workmanship is good.

All the Rules requirements have been complied with.

Noted

24
19/12/34.

[Handwritten signature]

Total Capacity of Generators 110 Kilowatts.

The amount of Fee Feb. 588.40 : When applied for, 15.12.34
Travelling Expenses (if any) £ : : When received, 27.12.34

E. Bernelius
Surveyor to Lloyd's Register of Shipping.

Committee's Minute Fri. 21 DEC 1934

Assigned

See other J.E. - Job 10084



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2m. 3. 31. - Transfer
The Surveys are requested not to write on or below the space for Committee's Minute.