

Rpt. 13.

No. 8097

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 20 OCT 1930

Date of writing Report 13.10. 1930 When handed in at Local Office 16th Oct. 1930 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey 16th June Last Survey 8th September 1930  
Reg. Book. 66887 on the M/S "Capella" (Number of Visits 14)

Tons { Gross 9682,58  
Net 5621,32

Built at Gothenburg By whom built Eriksbergs Mek. Verkstad Yard No. 236 When built 1930

Owners Trelleborgs Angfartygs Nya AB. Port belonging to Trelleborg

Electric Light Installation fitted by Elektr. ABol. A E G, Gothenburg Contract No. When fitted 1930

Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution two wire system

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 110 & 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 on aft in the engineroom

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 the engineroom

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 micamite 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 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 equaliser switch. For each outgoing circuit: A fuse on each pole and a double pole linked switch

Instruments on main switchboard 3 ammeters 3 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 ohmmeters 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



Cables: Single, twin, concentric, or multicore twin are the cables insulated and protected as per Tables IV or V of the Rules yes IV  
 2 volt + 3,2 per cent for lighting  
 Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 2 " + 4,0 " " 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 paper insulated cables are not used.

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 mental-clips. All powercables lead covered and armoured, lightcables in cabins lead covered, otherwise armoured or steelwired.  
 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 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 maincables are not jointed. Section cables are jointed in porcelain boxes and boxes 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 do not occur state the material of which the bushes are made

Earthing Connections, state what earthing connections are fitted and their respective sectional areas  
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

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 no  
 are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected the lamps contained in gastight fittings.  
in gastight tubing.  
 where are the controlling switches situated outside of dangerous spaces.

Searchlight Lamps, No. of 2, whether fixed or portable no, are their fittings as per Rule yes

Arc Lamps, other than searchlight lamps, No. of 1, are their live parts insulated from the frame or case no, 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, except motors for turning gears  
 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 no, 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 supplied 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	87	220		350	auxiliary Diesels	Diesel oil	above 150° F
AUXILIARY	1	14	110		650	" steam engine		
EMERGENCY						" " turbine		
Main	1	70	220		1500			
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) in meters.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole in sq. mm.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	3	95	37	1,80	300	300	22	Rubber	armoured part in iron pipes
EQUALISER CONNECTIONS	6	95	37	1,80	300	300	10	"	"
AUXILIARY GENERATOR	1	70	37	1,55	127	150	17	"	"
EMERGENCY GENERATOR	1	50	19	1,83	65	100	7½	"	"
ROTARY TRANSFORMER GENERATOR	1	50	19	1,83	65	100	7½	"	"
ENGINE ROOM	1	6	7	1,05	25½	28	5½	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Light Distrib. board A	1	4	7	0,86	4	22	87	"	"
" " B	1	16	7	1,70	20	50	77½	"	"
" " C	1	4	7	0,86	11	22	15	"	"
" " D	1	4	7	0,86	10	22	13	"	"
" " F	1	16	7	1,70	20	50	17	"	"
Accumulator									
" " G	1	16	7	1,70	8	50	104	"	"
" " H	1	16	7	1,70	20	50		"	"
WIRELESS	1	6	7	1,05	24	28	100	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	1,5	1	1,38	1	10	133	"	"
SIDE LIGHTS	1	1,5	1	1,38	1	10	15	"	"
COMPASS LIGHTS	1	1,5	1	1,38	1	10	14	"	"
POOP LIGHTS	1	1,5	1	1,38	1	10	111	"	"
CARGO LIGHTS									
ARC LAMPS									
Owen HEATERS for fuel & lub. oil	2	16	7	1,70	50	50	28	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) in meters.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole in sq. mm.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	16	7	1,70	50	50	34	Rubber	armoured part in iron pipes
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP and										
SANITARY PUMP	1	1	10	7	1,35	32	38	44½	"	"
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR	2	1	2½	7	0,67	10	15	15	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS and	2	1	120	37	2,03	150	175	21	"	"
cool water pumps comp.	1	1	16	7	1,70	36	50	15	"	"
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
110 V condensator pump	1	1	2½	7	0,67	10	15	33	"	"
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	2	1	70	37	1,55	110	150	40	"	"
WORKSHOP MOTOR	1	1	2½	7	0,67	12	15	44½	"	"
VENTILATING FANS										
110 V refrig. machine	1	1	50	19	1,83	3	100	30	"	"
fuel oil separator	1	1	1½	1	1,38	6,7	10	11	"	"
lubr. oil	1	1	1½	1	1,38	6,7	10	28	"	"
bath water pump	1	1	1½	1	1,38	5,0	10	41	"	"
fuel oil pump	1	1	16	7	1,70	28	50	130	"	"

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.

**ELEKTRISKA AKTIEBOLAGET A. E. G.**

*Oscar Lohman*

Electrical Engineers.

Date 13.10.1930.

**COMPASSES.**

Distance between electric generators or motors and standard compass about 15 metres

Distance between electric generators or motors and steering compass " 15 "

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.

**Eriksbergs Mekaniska Verkstads Aktiebolag**

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*forbjell*

Builder's Signature.

Date 16.10.1930.

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 was seen fitted on board this vessel under my inspection and has been tested and found satisfactory.*

*the workmanship is good.*

*All the Rules requirements have been complied with.*

*It is submitted that this vessel is eligible for THE RECORD. Elec. Light.*

*27/10/30*

Total Capacity of Generators 258 Kilowatts.

The amount of Fee ... ..	<u>Sk. 690:69</u>	When applied for,	<u>16/9 1930</u>
Travelling Expenses (if any) £	:	When received,	<u>3/10 1930</u>

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

Committee's Minute

Assigned

*E. Bernelius*

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