

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 JUN 1936

Received at London Office

Date of writing Report 18<sup>th</sup> June 1936 When handed in at Local Office 19<sup>th</sup> June 1936 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey 23<sup>rd</sup> April Last Survey 4<sup>th</sup> June 1936  
(Number of Visits 20)

Reg. Book. 38798 on the M/S Kollgrim Tons { Gross 8263  
Net 4973

Built at Gothenburg By whom built Eriksbergs Mek. Verksk No. 262 When built 1936

Owners Odd Bergs Tankrederi A/S Port belonging to Oslo

Electric Light Installation fitted by Elektriska Aktiebolaget A E G. Contract No. ✓ When fitted 1936

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wires System ✓

Pressure of supply for Lighting 110 ✓ volts, Heating \_\_\_\_\_ 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 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 Yes, main generator 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 \_\_\_\_\_ ✓

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 both sides in the engine room, 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 engine room

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

is it of an approved type \_\_\_\_\_, 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

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 See app. plan, temperature rise of omnibus bars Yes

individual fuses to voltmeter, pilot or earth lamp Yes, are moving parts of switches alive in the "off" position Yes

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

For each generator: A double pole circuit breaker with overload and reversed current trips and a single pole equalizer switch. For each outgoing circuit: two fuses and a double pole switch.

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 \_\_\_\_\_

Instruments on main switchboard \_\_\_\_\_ 6 \_\_\_\_\_ ammeters \_\_\_\_\_ 3 \_\_\_\_\_

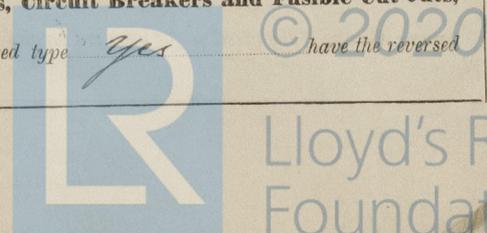
voltmeters \_\_\_\_\_ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection \_\_\_\_\_

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Yes

Ohmmeters fitted with commutator for both poles \_\_\_\_\_ 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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See later 1st Entry Report Kiel No 111 dated bet 1949

current protection devices been tested under working conditions 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, V, X or XI of the Rules Yes

If the cables are insulated otherwise than as per Rule, are they of an approved type 2 volt + 5% for power Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 2 volt + 3% for lighting 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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit Yes

Support and Protection of Cables, state how the cables are supported and protected supported by metal clips. All powerables lead-covered and armoured. Lightcables in cabins lead-covered, otherwise armoured or stealwired 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, are the cables and fittings in accordance with the special requirements ✓

Joints in Cables, state if any, and how made, insulated, and protected Mainables are not joruted, sections cables are jointed in porcelainboxes 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 ✓ 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 ✓

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 gaslight fittings, In gaslight tubing, how are the cables led Outside of dangerous space where are the controlling switches situated Outside of dangerous space

are all fittings suitably ventilated ✓, 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 ✓, 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 ✓, 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 all exel. turnings are their axes of rotation fore and aft gear motor, 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 ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing ✓ 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 ✓

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, except for some are they of an approved type Yes machinery space

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office ✓

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes

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	82	220	380	400	Diesel engine		
AUXILIARY	1	8	110	73		Steam engine		
EMERGENCY	1							
ROTARY TRANSFORMER	1	14	110	128				

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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.			
MAIN GENERATOR	2	150	37	2,25	380	424	50	Rubber	Lead-covered and steal armoured
EQUALISER CONNECTIONS	2	150	37	2,25			50	"	"
AUXILIARY GENERATOR	1	50	19	1,83	75	100	60	"	"
ROTARY TRANSFORMER	1	50	19	1,83	64	100	8	"	"
ENGINE ROOM	1	95	37	1,81	128	150	6	"	"
BOILER ROOM	1	6	7	1,05	15	29	4	"	"
AUXILIARY SWITCHBOARDS									
Light distrib.									
Poop starboard	1	4	7	0,86	18	25	40	"	"
larboard	1	4	7	0,86	18	25	40	"	"
Midships	2	20	14	1,35	35	80	180	"	"
Forecastle	1	4	7	0,86	5	25	260	"	"
ACCOMMODATION									
WIRELESS	2	25	7	2,13		62	180	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	1,5	7	0,52	1	9	220	"	"
SIDE LIGHTS	1	1,5	7	0,52	1	9	20	"	"
COMPASS LIGHTS	1	1,5	7	1,38	1	9	20	"	"
POOP LIGHTS	1	1,5	7	0,52	1	9	250	"	"
CARGO LIGHTS									
ARC LAMPS									
HEATERS for lubr. oil	1	25	7	2,13	55	62	80	"	"
" " fuel "	1	10	7	1,35	36	40	80	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	1	1	50	19	1,83	72	100	50	Rubber	Lead-covered and steal armoured
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	10	7	1,35	30	40	60	"	"
CHEST WATER PUMPS										
FRESH WATER PUMPS	1	1	25	7	0,67	8	16	60	"	"
COMPRESSOR	1	1	10	7	1,35	30	40	60	"	"
FRESH WATER PUMP	1	1	50	19	1,83	80	100		"	"
ENGINE TURNING GEAR	1	1	10	7	1,35	32	40	60	"	"
ENGINE REVERSING GEAR and cool water	2	1	185	37	2,52	220	230	30		
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1	1	10	7	1,35	32	40	50	"	"
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	50	19	1,83	100	100	100	"	"
WORKSHOP MOTOR	1	1	2,5	7	0,67	12	16	25	"	"
VENTILATING FANS										
Lubric oil-separ	1	1	2,5	7	0,67	8	16	95	"	"
Fuel oil-separ.	1	1	2,5	7	0,67	8	16	80	"	"

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All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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.

*Quar* FILIAL GÖTEBURG

Electrical Engineers.

Date 16/6 1936

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 Mek. Verkstads Aktiebolag

*Gunnar Gustafsson*

Builder's Signature.

Date

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.)

The electric installation of this vessel has been fitted on board under my inspection & has been tested and found satisfactory.

The workmanship is good and the Rule requirements are complied with.

Makers certificates of the generator are attached.

Please see secretary's letter initialed E of the 29th May 1936 regarding the motor-generator set fitted in this vessel

Noted

Man

28.6.36

R.L.M. 25/6/36

Total Capacity of Generators 190 Kilowatts.

The amount of Fee ... £ 637.00

When applied for, 19th June 1936

Travelling Expenses (if any) £

When received, 30.7.36

31/7

*G. S. ...*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 3 JUL 1936

Assigned

See other J.E. lot. 10765



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2 in 5/34.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.