

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

SEP 27 1938

Received at London Office

Date of writing Report 9/9/1938 When handed in at Local Office 10 Port of Oslo  
 No. in Survey held at Fredrikstad Date, First Survey 14th July Last Survey 6th September 1938  
 Reg. Book. 88765 on the steel single screw steamer "K.G. MELDAHL" (Number of Visits.....)  
 Built at Fredrikstad By whom built As Fredrikstad Mek. Verksted Yard No. 289 When built 1938-9  
 Owners K. K. Raasmussens Rederi AS Port belonging to Sandefjord  
 Electric Light Installation fitted by As Fredrikstad Mek. Verksted Contract No. ✓ When fitted 1938  
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution direct current, constant pressure. Two wire system  
 Pressure of supply for Lighting 110 volts, Heating - volts, Power (vent. fans) 110 volts.

Direct or Alternating Current, Lighting direct Power ✓  
 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 no, change-over system, an adjustable regulating resistance fitted in series with each shunt field ✓  
 Have certificates of test results for machines under 100 kw. been submitted and approved Forwarded now

Have certificates for generators under 100 kw. been supplied and approved Submitted now  
 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 In engine room, on SB side, 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 engine room, SB side, on forward hd.  
 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 Yes, is all insulation of high dielectric strength and of permanently high insulation resistance Yes

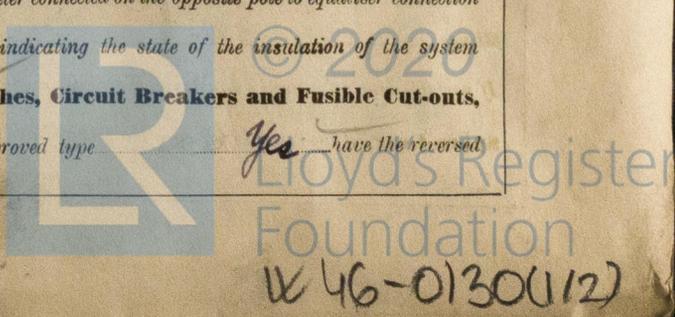
is it of an approved type Yes "SINDANYO", if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework ✓, is the non-hygroscopic insulating material of an approved type Yes, and is the frame effectively earthed ✓. 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, 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 No, 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 a double-pole linked switch and fuses for each generator and outgoing circuit.

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 Yes. Instruments on main switchboard two ammeters two voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection Yes

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Ohm meter for (+)(-) and direct indicating for each outg. circuit

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



current protection devices been tested under working conditions Yes are all fuses labelled as per rule 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, XI, XII or XIII of the Rules Yes

If the cables are insulated otherwise than as per Rule, are they of an approved type ✓ **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load ab. 4 volts

**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 Yes 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 laid under machines or floorplates No if so, are they adequately protected ✓

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit Lead covered

**Support and Protection of Cables**, state how the cables are supported and protected in pipe fittings fore aft, supported by clips

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 ✓ 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 Yes

**Joints in Cables**, state if any, and how made, insulated, and protected W.T. metal boxes, with porcelain jointing insulators

**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 earthing connections in all printing boxes, 10.3 mm<sup>2</sup> 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, in chartroom has each navigation lamp an automatic indicator as per Rule Yes **Secondary Batteries**, are they constructed and fitted as per Rule ✓ are they ventilated as per Rule ✓

**Fittings**, are all fittings on weather decks, in stowholds 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 Yes, cables are run in iron pipes 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 ✓ are all fittings suitably ventilated ✓ are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials ✓

**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 ✓

**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 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 ✓ have certificates for all motors for essential services been supplied and approved ✓

**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 ✓ are all fuses of the fitted cartridge type ✓ are they of an approved type ✓ If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces ✓ **Spare Gear**, if the vessel is for open sea service have spares been supplied as per Rule Yes are they suitably stored in dry situations Yes

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	1	10	110	91	475	Steam engine		
AUXILIARY	1	4.5	115	32	1200	Lister oil engine	Solar oil	
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Load and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins. MM.	No.	Diam. MM.	Circuit.	Rule.			
MAIN GENERATOR	1	50	14	2.14	91	160	45	paper	iron armoured
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	1	16	7	1.89	32	60	50	rubber	
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR	1	10	4	1.97	21	43	135		
ENGINE ROOM 1 Circuit	1	1.5	1	1.38	5.5	14	150		
BOILER ROOM	1	1.5	1	1.38	4.5	14	120		
AUXILIARY SWITCHBOARDS									
Plug switch fore mast	1	4	7	.85	6	25	330		
Head - aft	1	2.5	1	1.78	6	20	210		
aft	1	2.5	1	1.78	6	20	150		
Cargo light foremast	1	4	7	.85	6	25	375		
main - aft	1	4	7	.85	6	25	250		
ACCOMMODATION	1	2 1/2	7	1.78	6	20	180	rubber	iron arm.
Boat deck	1	6	7	1.04	15	31	120		
Shelter deck	1	6	7	1.82	22	75	100		
Heavy light control	1	2.5	1	1.78	30	20	140		
Ref. motor (prov. store)	1	2.5	1	1.78	2.12	20	70		
crew aft	1	10	7	1.97	12	43	240		
WIRELESS	1	25	7	2.5	26	100	140		
SEARCHLIGHT									
MASTHEAD LIGHT	1	2 1/2	1	1.78	.3	20	360		
SIDE LIGHTS	1	1.5	1	1.38	.3	14	75		
COMPASS LIGHTS	1	1.5	1	1.38	.3	14	36		
POOP LIGHTS	1	2.5	1	1.78	.2	14	390		
CARGO LIGHTS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Load and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	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										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
Refr. motor (fan)	1	1	1.5	1	1.38	2.12	14	100	rubber	iron, lead
Fan - refr. room	1	1	1.5	1	1.38	1.35	14	90	"	"
Rotary transformer II	1	1	10	7	1.27	2.27	43	140	"	"

The Electrical Equipment is installed in accordance with the approved plans.

All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

*J. Quayle* Electrical Engineers. Date *3/9-38*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *12' between emergency-transform and st. compass*

Minimum distance between electric generators or motors and steering compass *15 " " " " " " steering*

The nearest cables to the compasses are as follows: — *Lamps are installed in the binnacles*

A cable carrying Ampères feet from standard compass feet from steering compass.

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Have the compasses been adjusted with and without the electric installation at work at full power *yes*

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted *yes*

The maximum deviation due to electric currents was found to be *nil* degrees on course in the case of the standard

compass, and degrees on course in the case of the steering compass.

FR. & FREDRIKSTAD MEK. VERKSTED

*Quayle* Builder's Signature. Date *22/9/38*

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *"Viva", Oslo Rpt. 5097*

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

*The electric installation on this vessel has been examined during the fitting of the generators, cables and switchboards. The materials employed appear to be good, and the workmanship is good. — The installation was carried out in accordance with the approved plans and the Secretary's letters in connection therewith. The complete installation was tested as required by the Rules and found satisfactory. The generator test sheet is enclosed herewith.*

*It is recommended that this installation be classed as the Lowest Register Book.*

*Noted  
28/9/38*

Total Capacity of Generators *14,5 Kilowatts.*

The amount of Fee ... *£s. 288.55* When applied for. *28/9 1938*

Travelling Expenses (if any) *£s. 30.9* entered on: *hull rpt.* When received. *30/9 1938*

*Quayle*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI 30 SEP 1938*

Assigned *Sec. F. C. Rpt.*

2m. 12.36.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.

