

FEB 14 1938

Rpt. 18.12.38

No. 19510

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 11th Feb^y 1938 When handed in at Local Office 11th Feb^y 1938 Port of LeithNo. in Survey held at Leith Date, First Survey 29th Nov^r 1937 Last Survey 5th Feb^y 1938

Reg. Book. 38880 on the Twin Screw Motor Vessel "KAHIKA" Tons { Gross 1534 Net 834

Built at Leith By whom built Henry Robb Ltd Yard No. 245 When built 1938

Owners Union Steamship Co of New Zealand Port belonging to Melbourne

Electric Light Installation fitted by H. Robb Ltd Contract No. When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two wire parallel

Pressure of supply for Lighting 220 volts, Heating 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 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, is 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 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

Position of Generators In Engine Room on bottom platform, 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 No wood work

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 at after bulkhead

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 No woodwork

materials yes, 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, 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

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 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 For each generator D.P. circuit breakers with interlocked equalising switch + overload + return current trips. D.P. switches + fuses for circuits.

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 three ammeters three

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 Two earth lamps + two switches through D.P. fuses. 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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current protection devices been tested under working conditions *yes*

construction, protection, insulation, material, and position of these as per rule *yes*

Cables: Single turn, electric, mechanical *yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type *yes*

any point of the installation under maximum load *yes*

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 *yes*

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 *Braided cables in conduit. Lead covered cables secured by brass saddles*

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 *yes*

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 *In junction boxes by porcelain connectors*

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 *Sheathing of all cables bonded & earthed. Generators & switchboard frame bolted direct to earth*

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 *yes*

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 *none*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *yes*

where are the controlling switches situated *yes*

are all fittings suitably ventilated *yes*, 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 *yes*, are air heaters constructed and fitted as per Rule *yes*

Searchlight Lamps, No. of *none*, whether fixed or portable *yes*, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *yes*, are their live parts insulated from the frame or case *yes*, 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 the vertical pumps*, 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 woodwork*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *yes* and *yes*

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

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*

are all fuses of the filled cartridge type *yes* are they of an approved type *yes*

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

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

PARTICULARS OF GENERATING PLANT.

DESCRIPTION	RATED AT	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE
GENERATOR	Kilowatts	Per M.H.P.	Per M.H.P.
MAIN ...	3 60-Each 220 242 600	Rushlon & Cornish	Below 150° F
AUXILIARY ...		Diesel Engines	
EMERGENCY ...		(Gtmsby Rpt No 20346)	
ROTARY TRANSFORMER			

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	Circuit	Rule			
MAIN GENERATOR ...	2	3	34	.042	242	304	100	V.I.R. Braided	In conduit
EQUALISER CONNECTIONS ...	1	15	34	.042			100		
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	1	.003	3	.036	5	12	6	"	"
BOILER ROOM ...	1	.002	3	.029	5	7.8	60	"	"
AUXILIARY SWITCHBOARDS ...									
For pumps in Eng Room	1	.03	19	.044	52	53	50	V.I.R. Braided	In conduit
ACCOMMODATION ...									
Section box in E.R.	1	.004	4	.036	21.5	24	120	V.I.R. Braided	In conduit
Circuits	1	.002	3	.029	5	7.8	420	V.I.R. Lead covered	
WIRELESS ...	1	.004	4	.036	13	24	140	V.I.R. Braided	In conduit
SEARCHLIGHT ...	1	.002	3	.029	18	7.8	432	"	"
MASTHEAD LIGHT ...	1	.002	3	.029	18	7.8	40	"	"
SIDE LIGHTS ...	1	.002	3	.029	18	7.8	20	V.I.R. Lead covered	
COMPASS LIGHTS ...	1	.002	3	.029	18	7.8	20	V.I.R. Lead covered	
POOP LIGHTS ...	1	.004	4	.036	8.18	24	160	V.I.R. Braided	In conduit
CARGO LIGHTS ...	1	.004	4	.036	8.18	24	160	V.I.R. Braided	In conduit
ARC LAMPS ...	1	.0225	7	.064	44.7	46	120	"	"
HEATERS ...	1	.0145	7	.052	32.5	37	120	"	"

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	.0145	7	.052	36.5	37	60	V.I.R. Braided	In conduit
MAIN BILGE LINE PUMPS ...	1	1	.0145	7	.052	36.5	37	66	"	"
GENERAL SERVICE PUMP ...	1	1	.0145	7	.052	36.5	37	66	"	"
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR ...	1	1	.045	19	.042	85	94	45	"	"
FRESH WATER PUMP ...										
ENGINE TURNING GEAR ...										
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...	1	1	.004	4	.036	18	24	20	"	"
OIL FUEL TRANSFER PUMP ...	1	1	.1	19	.083	116	118	416	"	"
WINDLASS ...										
WINCHES, FORWARD two	2	12	19	.064	180	184	380	"	"	
WINCHES, AFT two	2	12	19	.064	180	184	380	"	"	
WINCHES, MIDDLESHIP two	2	12	19	.064	180	184	380	"	"	
STEERING GEAR—										
(a) MOTOR GENERATOR ...	2	1	.01	4	.044	26	31	60	"	"
(b) MAIN MOTOR ...	1	1	.003	3	.036	11.2	12	80	"	"
WORKSHOP MOTOR ...										
VENTILATING FANS ...										

Particulars of Generating Plant
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.

Henry Robb-Holt
J. P. C. M. M.

Electrical Engineers.

Date

7th Feb 1938

COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying .07 Ampères on feet from standard compass. 12 feet from steering compass.

A cable carrying .07 Ampères 12 feet from standard compass on 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 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 all course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

Henry Robb-Holt
J. P. C. M. M.

Builder's Signature.

Date

7th Feb 1938

Is this installation a duplicate of a previous case If so, state name of vessel

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

This Installation - Gms. Rpt. N° 20346 - has been efficiently fitted on board, in accordance with the Rules, the materials & workmanship being sound & good. The wiring has been carried out in accordance with the approved plans, & on completion, the installation was found satisfactory under full load & working conditions. ✓

Noted.

Robb-Holt
15-2-38

Total Capacity of Generators 180 Kilowatts.

The amount of Fee ... £ 40 : 10 : 0 When applied for, 12-2-1938.

Travelling Expenses (if any) £ : : When received, 2-3-1938. £33.

John Houston
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 18 FEB 1938

Assigned See other J.B. report

2m.534.- Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute.)



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