

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 15th Oct. 19 40 When handed in at Local Office 22nd Oct. 19 40 Port of Baltimore, Maryland Received at London Office NOV 13 1940

No. in Survey held at Baltimore, Md. Date, First Survey 27th August Last Survey 10th September 19 40
Reg. Book. 77056 on the Steel Single Screw Steamship "KALANI" (Number of Visits 3)

Tons { Gross 5506.9
Net 3412.

Built at Seattle, Washington By whom built St. Lawrence & Eddy Corp Yard No. 21 When built 1918

Owners Ministry of Shipping Port belonging to St. Lawrence & Eddy - Seattle, W.

Electric Light Installation fitted by St. Lawrence & Eddy - Seattle, W. Contract No. — When fitted May 1918

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two Wires, Two Conductors

Pressure of supply for Lighting 110 volts, Heating None volts, Power None volts.

Direct or Alternating Current, Lighting Direct Current 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 — are they compound wound Yes
are they over compounded 5 per cent. understood to be, 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.

Have certificates of test results for machines under 100 kw. been submitted and approved — 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 Located on special raised platform on 5th side of 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 Adjacent to dynamo on special raised platform

5th side aft of 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 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 — is the non-hygroscopic insulating material of an approved type — and is the frame effectively earthed —

Are the fittings as per Rule regarding:— spacing or shielding of live parts Yes. accessibility of all parts Good. absence of fuses on back of board Yes. temperature rise of omnibus bars — 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 —

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches One three pole none fused knife switch. One single pole air circuit breaker

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 TWO 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 Detector lamps from bus to ground. 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.* **Joint Boxes, Section and Distribution Boards,** is the construction, protection, insulation, material, and position of these as per rule. *Yes (as of 1918)*

Cables: Single, twin, concentric, or multicore *Single* 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 *Yes.* **Fall of Pressure,** state maximum between bus bars and 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.* Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Conduit + Lead covered cable.*

Support and Protection of Cables, state how the cables are supported and protected. *Cups + Straps*

If cables are run in wood casings, are the casings and caps secured by screws *all metallic*, 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 *metallic Conduit*

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. *Soldered, Rubber tape + painted with compound.*

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 brushed *in Conduit* 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. *No emergency Conduit - Oil lamps*

Yes. **Navigation Lamps,** are these separately wired *Yes.* controlled by separate switch and separate fuses *Yes.* are the fuses double pole *double.* are the switches and fuses grouped in a position accessible only to the officers on watch *Yes, Pilot House at Bridge.*

has each navigation lamp an automatic indicator as per Rule *Yes, switches.* **Secondary Batteries,** are they constructed and fitted as per Rule *Radio only.*

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 *Tarpaulin (proof fittings) and special gaskets.*

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.*

how are the cables led *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 *One 18" 30amps*, whether fixed or portable *Portable*, are their fittings as per Rule *Yes.*

Arc Lamps, other than searchlight lamps, No. of *None*, 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 *approved.* 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 *Fore + Aft* 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 *Not so situated.*

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 *As Rules 1918.* **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.*

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	15	110	136	425	Vertical Steam Engines		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

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									
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT									
SIDE LIGHTS									
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

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										
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	1	1	4000 Cm	1	1/8"	576		60ft	Rubber	Conduit
VENTILATING FANS	1	1	4000 Cm	1	1/8"	8.3		15ft	Rubber	Conduit
Radio, 3rd	1	1	4000 Cm	1	1/8"	4		250ft	Rubber	Conduit

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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.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass approximately 120 feet

Distance between electric generators or motors and steering compass 110 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.8 Ampères 16 feet from standard compass and feet from steering compass.

A cable carrying 0.5 Ampères 9 feet from standard compass 5 feet from steering compass.

A cable carrying 20 Ampères 9 feet from standard compass 6 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.

Builder's Signature.

Date

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, etc.)

The Electrical installation of this vessel was installed by the Philadelphia - Messrs. Kilham & Eddy Corp, Seattle Washington in 1918. Practically all cables & leads are run in conduit & understood approved at that time by the A.I.E.E. & American Bureau of Shipping. The Electric Generators have not been opened for examination at the time, but observed under working conditions they function satisfactorily, are clean & apparently in an efficient state.

Survey in regard to the main Propelling machinery, boilers, auxiliaries & all accessories remains to be completed in accordance with the Rules at a later & more convenient date, the vessel having been purchased by the British Ministry of Shipping & is urgently required. Upon the satisfactory completion of the Machinery Survey it has been recommended that a Report of LAC (inc Boilers), fitted for oil fuel 70 above 1507 - with date - could be made in Register Book.

Total Capacity of Generators 30 Kilowatts.

		Exps.
		When applied for,
The amount of Fee ...	To be collected in London.	Oct. 22, 1940
Travelling Expenses (if any) £	\$1.00 :	When received.
		19

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Elec. Light