

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 28. 4. 1931 when handed in at Local Office 23. 5. 1931 Port of GLASGOW. Received at London Office 27 MAY 1931

No. in Survey held at GLASGOW. Date, First Survey 3. 2. 31 Last Survey 24 - 4 - 1931
Reg. Book. 91865 on the M.V. "ORAWA" (Number of Visits 7)

Built at GLASGOW By whom built ALEX. STEPHEN & SONS LTD. and No. 532 When built 1931
Owners NEW ZEALAND SHIPPING CO. LTD. Port belonging to PLYMOUTH. Tons {Gross 10107
Net

Electric Light Installation fitted by ALEX. STEPHEN & SONS LTD. Contract No. 532 When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two Wire System
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 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 Two Port & Two Starbd. Side of Engine Rm.
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 Switchboard Platform Fore End of Engine Rm.

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, Slate, 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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Bushed with Micanite

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: 3-1400 Amp., 1-450 Amp.

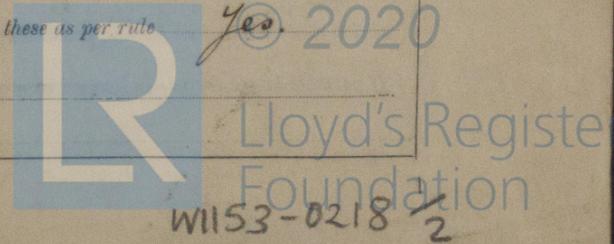
T.P. Circuit Breakers (centre pole as equalizer) for Main generators, Each Outgoing circuit up to 200 Amps. fitted with DP Switch & Fuses, 200 Amp. & over fitted with DP Circuit Breakers.

Instruments on main switchboard 4 ammeters 2 voltmeters 1 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. 3 earth indicating lamps with switches & fuses.

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 Single are the cables insulated and protected as per Tables IV or V of the Rules Yes

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load lighting 4.5 Volts, Power Heating 75V d.c.

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 MOZRAP 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 Varnished Cambria cables sealed & taped

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 MOZRAP Yes

Support and Protection of Cables, state how the cables are supported and protected L.L. & B cables clipped to bulkheads in Accommodation, L.L. & B cables run in Troughing on open Decks & protected with Gal. Iron Plating

If cables are run in wood casings, are the casings and caps secured by screws MOZRAP Yes, are the cap screws of brass MOZRAP Yes, are the cables run in separate grooves MOZRAP Yes. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII MOZRAP Yes

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements MOZRAP Yes

Joints in Cables, state if any, and how made, insulated, and protected MOZRAP Nil.

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands MOZRAP Yes

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed MOZRAP Yes state the material of which the bushes are made Lead for L.L. cables, Fibre for L.L. & B cables.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas MOZRAP Metallic Sheathing of cables bonded to earth with clips and bonding glands.

are their connections made as per Rule MOZRAP Yes

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule MOZRAP Yes

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven MOZRAP Battery

Navigation Lamps, are these separately wired MOZRAP Yes, controlled by separate switch and separate fuses MOZRAP Yes, are the fuses double pole MOZRAP Yes, are the switches and fuses grouped in a position accessible only to the officers on watch MOZRAP Yes, has each navigation lamp an automatic indicator as per Rule MOZRAP Yes

Secondary Batteries, are they constructed and fitted as per Rule MOZRAP Yes

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight MOZRAP 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 MOZRAP Yes, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected MOZRAP Yes, how are the cables led MOZRAP Yes, where are the controlling switches situated MOZRAP Yes

Searchlight Lamps, No. of MOZRAP 1, whether fixed or portable MOZRAP Portable, are their fittings as per Rule MOZRAP Yes

Arc Lamps, other than searchlight lamps, No. of MOZRAP —, are their live parts insulated from the frame or case MOZRAP —, are their fittings as per Rule MOZRAP —

Motors, are their working parts readily accessible MOZRAP Yes, are the coils self-contained and readily removable for replacement MOZRAP Yes except vertical motors, are the brushes, brush holders, terminals and lubricating arrangements as per Rule MOZRAP Yes, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material MOZRAP Yes, are they protected from mechanical injury and damage from water, steam or oil MOZRAP Yes, are their axes of rotation fore and aft MOZRAP 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 MOZRAP Totally enclosed & drip proof, if not of this type, state distance of the combustible material horizontally or vertically above the motors MOZRAP — and MOZRAP —

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule MOZRAP Yes

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule MOZRAP Nil.

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 MOZRAP Yes

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office MOZRAP Yes

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHEN DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	305	220	1390	270	Diesel Engines	Diesel Oil	over 150° F
AUXILIARY	1	100	220	450	1500	Steam Engine (Turbine)		
EMERGENCY	1	220	270	Amp. hour		Chloride Sulphuric Acid		
BATTERY	1							
ROTARY TRANSFORMER								

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	2	.8453	127	.093	1390	1466	150	Cambria	L.L. & B.
EQUALISER CONNECTIONS	1	.8453	127	.093	—	733	75	"	"
AUXILIARY GENERATOR	1	.6620	91	.093	450	561	222	"	"
EMERGENCY GENERATOR	1	.6620	91	.093	450	561	222	"	"
BATTERY MOTOR	2	.02214	7	.064	30	68	300	"	"
ROTARY TRANSFORMER GENERATOR	1	.02214	7	.064	58	68	60	"	"
ENGINE ROOM	1	.02214	7	.064	58	68	60	"	"
BOILER ROOM	1	.02214	7	.064	58	68	60	"	"
AUXILIARY SWITCHBOARDS	1	.00701	7	.036	12	24	300	V.I.R.	"
Navigation lights	1	.01462	7	.052	32	37	250	"	"
Engine & Officer's Acc. Lts	1	.01462	7	.052	32	37	250	"	"
Crew & Service	1	.01462	7	.052	15	31	250	"	"
Navigation Essential Eng. & Officer's	1	.00701	7	.036	8	24	300	"	"
Accommodation	1	.00455	7	.023	10	18.2	60	"	"
Engine Room	1	.00455	7	.023	10	18.2	60	"	"
WIRELESS	1	.00701	7	.036	6.8	24	432	"	"
SEARCHLIGHT	1	.00455	7	.023	2.2	18.2	80	"	"
MASTHEAD LIGHT	1	.00194	3	.023	.28	7.8	591	"	"
SIDE LIGHTS	1	.00194	3	.023	.28	7.8	150	"	"
COMPASS LIGHTS	1	.00194	3	.023	.28	7.8	45	"	"
POOP LIGHTS	1	.00194	3	.023	.28	7.8	300	"	"
CARGO LIGHTS	1	.02214	7	.064	44	68	270	Cambria	L.L. & B.
ARC LAMP	1	.0600	19	.064	82	122	300	"	"
HEATERS	1	.14780	37	.072	195	222	210	"	"

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
	No. of Motors.	No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.				Rule.
BALLAST PUMP	1	1	.0600	19	.064	85	122	221	Cambria	L.L. & B.
MAIN BILGE LINE PUMPS	2	1	.03960	19	.052	70	94	255	"	"
GENERAL SERVICE PUMP	1	1	.0600	19	.064	85	122	204	"	"
EMERGENCY BILGE PUMP	1	1	.0600	19	.064	85	122	195	"	"
SANITARY PUMP	1	1	.0600	19	.064	85	122	105	"	"
CIRC. SEA WATER PUMPS	3	1	.11680	37	.064	174	189	105	"	"
CIRC. FRESH WATER PUMPS	2	1	.74350	91	.103	600	664	195	"	"
AIR COMPRESSOR	2	1	.00455	7	.023	12	18.2	30	V.I.R.	"
FRESH WATER PUMP	2	1	.00455	7	.023	12	18.2	30	V.I.R.	"
ENGINE TURNING GEAR	2	1	.02214	7	.064	58	68	180	Cambria	"
OIL SEPARATORS	3	1	.02214	7	.064	58	68	60	"	"
ENGINE REVERSE GEAR	3	1	.02214	7	.064	58	68	60	"	"
LUBRICATING OIL PUMPS	2	1	.03960	19	.052	66	94	120	"	"
OIL FUEL TRANSFER PUMP	2	1	.03960	19	.052	54	84	30	"	"
WINDLASS	1	1	.30240	37	.103	232	346	50	"	"
WINCHES, FORWARD	10	1	.30240	37	.103	270	346	900	"	"
WINDLASS BOOSTER	1	1	.30240	37	.103	200	346	100	"	"
WINCHES AFT	10	1	.30240	37	.103	270	346	370	"	"
Ring Main	3	1	.07592	19	.072	111	141	381	"	"
Ring Fans	4	1	.0600	19	.064	85	122	430	"	"
STEERING GEAR	1	1	.07592	19	.072	128	141	430	"	"
(a) MOTOR GENERATOR	1	1	.07592	19	.072	96	141	750	"	"
(b) MAIN MOTOR	1	1	.07592	19	.072	96	141	750	"	"
WORKSHOP MOTOR	1	1	.01462	7	.052	23.2	37	141	V.I.R.	"
VENTILATING FANS	4	1	.0600	19	.064	74.2	122	270	Cambria	"
Boat Winches	2	1	.02214	7	.064	58	68	270	"	"
Domestic Mc Bd.	1	1	.10080	19	.083	100	172	156	"	"
Crane (Eng. Rm.)	3	1	.01462	7	.052	28	37	141	V.I.R.	"
Oil Heater & Blowet	1	1	.00701	7	.036	14.8	24	120	"	"
Oil Compressor	2	1	.74350	91	.103	640	664	66	Cambria	"
Borine Pumps	4	1	.03960	19	.052	63	94	102	V.I.R.	"
"	1	1	.01462	7	.052	31	37	102	V.I.R.	"

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.

ALEXANDER STEPHEN & SONS, LIMITED

Electrical Engineers.

Date 21. 5. 31

A. M. Stephen

COMPASSES.

Distance between electric generators or motors and standard compass 85 feet
 Distance between electric generators or motors and steering compass 80 feet
 The nearest cables to the compasses are as follows:—
 A cable carrying .36 Amperes 10 feet from standard compass 8 feet from steering compass.
 A cable carrying .55 Amperes 10 feet from standard compass 12 feet from steering compass.
 A cable carrying .81 Amperes 14 feet from standard compass 8 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 No degrees on any course in the case of the standard compass, and No degrees on any course in the case of the steering compass.

ALEXANDER STEPHEN & SONS, LIMITED

A. M. Stephen

Builder's Signature.

Date 21. 5. 31.

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

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

This installation has been fitted on board under special survey, tested under full working conditions and found satisfactory. The electrical spare gear for the refrigerating plant has been checked on board and found to be correct. The materials and workmanship were found to be good and sound.

A.S.
23/5/31.

Elec. Light

D.A. 27/5/31.

Total Capacity of Generators 1015 Kilowatts.

The amount of Fee ... £ 56 : 17 : 6 5/5/1931

Travelling Expenses (if any) £ : : 22/5/1931

Committee's Minute GLASGOW 26 MAY 1931

Assigned Elec Light

A. Staffer

Surveyor to Lloyd's Register of Shipping.

Im. 9.30.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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