

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office..... 25 APR 1934

Date of writing Report 10-4-1934 When handed in at Local Office 21-4-1934 Port of **GLASGOW.**
 No. in Survey held at **GLASGOW.** Date, First Survey 12th June '34 Last Survey 9th April 1934
 Reg. Book. 42158 on the **S.S. 'WAITAKI'** (Number of Visits..... 7.....)
 Tons { Gross 2218
 Net 1098
 Built at **GLASGOW.** By whom built **A. STEPHEN & SONS** Yard No. **538** When built **1934**
 Owners **UNION S.S. CO. OF NEW ZEALAND LTD.** Port belonging to **DUNEDIN.**
 Electric Light Installation fitted by **A. STEPHEN & SONS LTD.** Contract No. **588** When fitted **1934**
 Is the Vessel fitted for carrying Petroleum in bulk **No.**

System of Distribution **Double Wire**

Pressure of supply for Lighting **110 Volts** volts, Heating **Nil** volts, Power **110** 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, 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 **Engine Rm. Starbd. Aft.**

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 **Direct coupled**

Main Switch Boards, where placed **Engine Rm. Starbd. Aft.**

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

are they constructed wholly of durable, non-ignitable non-absorbent materials **Sindanyo**, 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 **Sindanyo**

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 **1-200 amp. D.P. C.O. switch,**

2-200 amp. S.P. Fuses, 2-60 amp. S.P. Fuses. 3-60 amp. Circuits with D.P. Switches & S.P. Fuses,

6-30 amp. circuits with D.P. Switches + S.P. Fuses.

Instruments on main switchboard **1** ammeters **1** voltmeters — 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

1 - Earth Lamp with Switch and fuse on each Pole.

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 2.7 volts.

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 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 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 L.B.A.B. cables clipped to Bulkheads etc in Accom.
L.B.A.B. clipped to Perforated Tray + Bulkhead in Eng. + Boiler Rms. V.I.R. in Tubing in Holds + Deck.

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, if lights are fitted, are the cables and fittings in accordance with the special requirements Yes.

Joints in Cables, state if any, and how made, insulated, and protected None.

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 Fibre + Lead.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas None.

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 None.

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 None.

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 Gas-tight with heavy metal guard.

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

Cast Iron Gas Tight Fittings, how are the cables led V.I.R. cables in Solid Drawn Gas-tight Galvanised Tubing.

where are the controlling switches situated B.P. Switch on Nav. Bridge for Hold etc. and switches in Fuse Boxes for individual circuits. Fuse Boxes fitted in Officers Alleyway.

Searchlight Lamps, No. of —, whether fixed or portable —, are their fittings as per Rule —.

Arc Lamps, other than searchlight lamps, No. of —, are their line 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 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 Gas-tight motors for Refrig. fans.

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 Totally Enclosed, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —.

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 None.

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.

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office None used.

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.	12.	110	109	500.	Steam Engine.		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		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	1.	0.10090.	19.	0.083.	109.	118.	65	V.I.R.	L.B.A.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR	1.	0.01462.	7.	0.052.	218.	57.	30.	V.I.R.	L.B.A.B.
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Navigation Lights	1.	0.01046.	7.	0.044.	120.	31.	250.	V.I.R.	L.B.A.B. + L.B.B.
ACCOMMODATION Midship	1.	0.03460.	19.	0.052.	41.3.	64.	90.	"	L.B.A.B.
Forecastle	1.	0.00299.	3.	0.036.	20.	12.	440.	"	L.B.A.B. L.B. + V.I.R. in Tubing
Poop	1.	0.00299.	3.	0.036.	309.	12.	300.	"	in Tubing
Holds + Deck etc	1.	0.03460.	19.	0.052.	26.36.	64.	360.	"	L.B.A.B.
Shore connection	1.	0.03460.	19.	0.052.	40.0.	64.	128.	"	L.B.A.B.
WIRELESS	1.	0.00701.	7.	0.036.	10.0.	24.	250.	"	L.B.A.B. + L.B.B.
SEARCHLIGHT									
MASTHEAD LIGHT	1.	0.00194.	3.	0.029.	0.36.	7.8.	270.	V.I.R.	L.B.A. + V.I.R. in Tubing
SIDE LIGHTS	1.	0.00194.	3.	0.029.	0.36.	7.8.	72.	"	L.B.B. + V.I.R. in Tubing
COMPASS LIGHTS	1.	0.00194.	3.	0.029.	0.36.	7.8.	30.	"	L.B.B.
POOP LIGHTS	1.	0.00194.	3.	0.029.	0.36.	7.8.	432.	"	L.B.B. + V.I.R. in Tubing
CARGO LIGHTS	1.	0.00194.	3.	0.029.	0.36.	7.8.	96.	"	V.I.R. + B. in Tubing
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		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.			
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.	0.00455.	7.	0.029.	90.	18.2.	40.	V.I.R.	L.B.A.B.
VENTILATING FANS										
Refrig. Fans	3.	1.	0.00455.	7.	0.029.	5.3.	18.2.	104.	V.I.R.	V.I.R. + B. in Tubing
Refrig. M/c "Hallmark"	1.	1.	0.00455.	7.	0.029.	9.0.	18.2.	140.	V.I.R.	in Tubing

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.

XANDER STEPHEN & SONS, LIMITED.

Electrical Engineers.

Date 20/4/34

L. R. Grange Director

COMPASSES.

Distance between electric generators or motors and standard compass 88 feet

Distance between electric generators or motors and steering compass 84 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.36 Ampères 5 feet from standard compass 4 feet from steering compass.

A cable carrying 1.09 Ampères 6 feet from standard compass 7 feet from steering compass.

A cable carrying 1.8 Ampères 9 feet from standard compass 5 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.

XANDER STEPHEN & SONS, LIMITED.

Builder's Signature.

Date 20/4/34

L. R. Grange Director

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, etc. This installation has been fitted on)

board under special survey, tested under full working conditions and found satisfactory. The materials & workmanship were found to be good and sound.

21/4/34.

Noted

RA

25/4/34

AL

Total Capacity of Generators 12. Kilowatts.

The amount of Fee ... £ 12 : - : 24 APR 1934

Travelling Expenses (if any) £ — : 8.6.34

A. Stafford
 Surveyor to Lloyd's Register of Shipping.

TUE 8 MAY 1934

Committee's Minute GLASGOW 24 APR 1934

Assigned Elec. Light



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 Foundation

1m.9.30.—1 Foundation.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

No 5138

Laird