

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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No. in Survey held at GLASGOW. Date, First Survey 10-11-24 Last Survey 22-12-1924
Reg. Book.

84435. on the "M. V. AORANGI."

(Number of Visits 5)

Tons { Gross 14490
Net 10732

Built at GOVAN. By whom built THE FAIRFIELD S.B. & CO. Yard No. 603. When built 1924.

Owners THE UNION S.S. CO. OF NEW ZEALAND. Port belonging to LONDON.

Electric Light Installation fitted by FAIRFIELD S.B. & CO. LTD Contract No. 603 When fitted 1924.

System of Distribution	2 WIRE		
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 overload 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 and clearly marked YES, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited YES			
Are the lubricating arrangements of the generators as per Rule YES			
Position of Generators	AUXILIARY ENGINE ROOM HOLD LEVEL		
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 NONE and NONE, are the generators protected from mechanical injury and damage from water, steam or oil YES			
are their axis 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	AFT END OF AUXILIARY ENGINE ROOM, ON FLAT, LOWER DECK LEVEL		
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 NONE and NONE			
are they constructed wholly of durable, incombustible non-absorbent materials YES, is all insulation of high dielectric strength and of permanently high insulation resistance YES			
if semi-insulating material is used, are all conducting parts connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework YES, and is the frame effectively earthed YES			
Are the following fittings as per Rule, viz. :— 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 EACH GENERATOR HAS 1500 AMP. T.P. OVERLOAD BREAKER WITH TIME LAGS, MAGNETIC BLOWOUTS ON 2 OUTER POLES, MIDDLE POLE MAKES FIRST & BREAKS LAST & CONSTITUTES EQUALIZER SWITCH. OUTGOING CIRCUITS HAVE EITHER DR OVERLOAD BREAKERS WITH TIME LAGS, OR DR SWITCHES & FUSES.			
Instruments on main switchboard	15	ammeters	6 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 EARTH LAMPS WITH SWITCHES & FUSES, ON EACH POLE.			
Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YES			
Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES			

Insulation of Cables, state type of cables, single or twin **SINGLE** are the cables insulated and protected as per Tables III or IV of the Rules **YES**

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **4 VOLTS**

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 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 **NONE**

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.C. CABLES FIXED ON SHEET IRON PLATES WITH BRASS CLIPS. L.A.B. CABLES FIXED ON SHEET IRON PLATES WITH GALV. IRON CLIPS. V.I.R. CABLES IN WOOD CASINGS**
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 VI **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 Positions, 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 **SHEET LEAD & WOOD**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **NONE**
are their connections made as per Rule **—**

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 **EMERGENCY GENERATOR & SWITCHBOARD IN EMERGENCY DYNAMO ROOM ON BOAT DECK. PRIME MOVER CONSISTS OF A WEIR-SULZER VERTICAL R.V. TYPE 2 CYLINDER DIESEL ENGINE.**

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**, are separate screens provided for the use of oil and electric side lights **NO**
are separate oil-lanterns provided for the mast head lights and side lights **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 **SPECIAL CARGO FITTING WITH IRON COVER.**
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **NO**
how are the cables led **—**

where are the controlling switches situated **—**

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

Arc Lamps, other than searchlight lamps, No. of **NIL**, are their live 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 **YES**
are they protected from mechanical injury and damage from water, steam or oil **YES** are their axis 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 **YES**, 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 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 **—**

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

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 ...	4	300 ✓	220	1365	200	SULZER 4 CYL. DIESEL ENGINES	SHELL - MEX	220°F.
AUXILIARY ...								
EMERGENCY ...	1	36 ✓	220	163.5	350	WEIR-SULZER RV TYPE DIESEL ENG.	SHELL - MEX	220°F.
Rotary-Transformer								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	TOTAL No. of Conductors. LEAD & RETURN.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	EACH MAIN GENERATOR...	7	.75 ✓	31	.103"	1365	88	PURE RUBBER	LEAD COVERED
	AUXILIARY GENERATOR	2	.06 ✓	19	.064"	45.5	52	D°	D°
	EMERGENCY GENERATOR	2	.2 ✓	37	.083"	163.5	30	D°	D°
	Rotary Transformer...								
	EMERGENCY ASSEMBLY SWITCHBOARD	2	.25 ✓	37	.093"	163.5	660	D°	D°
S6	ENGINE ROOMS	2	.06 ✓	19	.064"	55.3	184	D°	D°
	Boiler Room								
J1	1 st CL. ACCOMMODATION PORT	2	.1 ✓	19	.083"	91.4	94	D°	D°
J2	D° STAR	2	.12 ✓	37	.064"	116.89	94	D°	D°
J3	2 nd CL. ACCOMMODATION	2	.2 ✓	37	.083"	130.42	676	D°	D°
J4	3 rd CL. D°	2	.06 ✓	19	.064"	42.93	408	D°	D°
J5	CREW AFT & GALLEY ETC.	2	.075 ✓	19	.072"	59.5	394	D°	D°
SSC	D° FOR & MAINS ETC.	2	.04 ✓	19	.052"	25.1	468	D°	D°
J7	DARK CORNER CIRCUIT	2	.1 ✓	19	.083"	69.6	94	D°	D°
J34	PUBLIC ROOMS 1 st CL.	2	.2 ✓	37	.083"	186.2	94	D°	D°
SE1	NAVIGATION ETC.	2	.0225 ✓	7	.064"	14.0	740	D°	D°
JE2	POLICE L ^{ts} FOR	2	.04 ✓	19	.052"	29.6	304	D°	D°
SE3	D° AFT	2	.0225 ✓	7	.064"	12.0	288	D°	D°
SE4	OFFICERS' ACCOMMODATION	2	.0225 ✓	7	.064"	17.1	632	D°	D°
	WIRELESS ENGINEERS' ACCOMMODATION	2	.04 ✓	19	.052"	20.0	550	D°	D°
SE5	DECK MOUNTED LIGHTS	2	.04 ✓	19	.052"	27.98	74	D°	D°
JE6	BOAT LIFT LIGHTS	2	.04 ✓	19	.052"	34.5	116	D°	D°
SE6D	COMPASS LIGHTS	2	.04 ✓	19	.052"	17.0	38	D°	D°
	Reef Lights								
J8	CARGO LIGHTS	2	.1 ✓	19	.083"	62.2	94	D°	D°
	Auto-Ins.								
JE10	HEATING OZONIFIERS	2	.0225 ✓	7	.064"	16.0	30	D°	D°

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
313	PASSENGER LIFTS BALLAST PUMP	2	.06 ✓	19	.064"	51.0	76	PURE RUBBER	LEAD COVERED
	MAIN BILGE LINE PUMP	1	.1 ✓	19	.083"	98.0	320	D°	D°
J9	GALLEY MACHINERY GENERAL SERVICE PUMP	26	.6 ✓	91	.093"	380.0	468	D°	D°
	EMERGENCY BILGE PUMP	1	.1 ✓	19	.083"	70.0	340	D°	D°
	SANITARY PUMPS...	2	.1 ✓	19	.083"	96.0 EACH	88	D°	D°
	(JACKET) COOLING CIRC. SEA WATER PUMPS	2	.3 ✓	37	.103"	270.0 EACH	234	D°	D°
	(PISTON) COOLING CIRC. FRESH WATER PUMPS	2	.12 ✓	37	.064"	118.5 EACH	250	D°	D°
	AIR COMPRESSORS	2	.3 ✓	37	.103"	249.0 EACH	376	D°	D°
	TURBO BLOWERS	3	2 @ 100 IN.	127	.103"	1245.0 EACH	200	D°	D°
S14	ENGINE TURNING GEAR	4	.075 ✓	19	.072"	73.0	222	D°	D°
J10	LAUNDRY MACHINERY ENGINE REVERSE GEAR	14	.1 ✓	19	.083"	70.2	810	D°	D°
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP								
	Windlass								
SE9	BOAT WINCHES, FORWARD	6	.2 ✓	37	.083"	185.0	30	D°	D°
	Winches, Aft								
	STEERING GEAR	2	.2 ✓	37	.083"	160.0 EACH	856	D°	D°
	Winches, Motor								
S27	VENTILATING FANS	7	.075 ✓	19	.072"	65.0	438	D°	D°
S28	D°	8	.1 ✓	19	.083"	88.5	274	D°	D°
S29	D°	11	.15 ✓	37	.072"	139.5	134	D°	D°
S30	D°	10	.12 ✓	37	.064"	122.0	476	D°	D°
S31	D°	11	.12 ✓	37	.064"	114.9	540	D°	D°
S32	D°	11	.15 ✓	37	.072"	128.0	630	D°	D°
S33	D°	8	.1 ✓	19	.083"	96.0	222	D°	D°

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.

E. Skinner

Electrical Engineer.

Date 28th January 1925

COMPASSES.

Distance between electric generators or motors and standard compass 29 FEET FROM PAN MOTOR

Distance between electric generators or motors and steering compass 23 " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 15 Amperes 1 IN feet from standard compass feet from steering compass.

A cable carrying 15 Amperes feet from standard compass 1 IN feet from steering compass.

A cable carrying Amperes 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 ANY course in the case of the standard compass, and Nil degrees on ANY course in the case of the steering compass.

THE FAIRFIELD SHIPBUILDING
AND ENGINEERING CO., LIMITED.

Builder's Signature.

Date 28th Jan. 1925

A. J. Hendin MANAGER

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, &c.)

This installation has been fitted on board under special survey. Tested under full working conditions and found satisfactory in every way.

The workmanship was found to be good and sound, and all the requirements of the rules have been carried out.

It is submitted that
this vessel is eligible for
THE RECORD Elec. light.

W.D.
5/1/25

Total Capacity of Generators 1236. Kilowatts

The amount of Fee ... £ 63.8.0.

When applied for,
26.12.24

Travelling Expenses (if any) £

When received,
Satisfied book.

J. S. Rankin.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute.

GLASGOW - 3 FEB 1925

Assigned

Elec. Light.

LR-FAF-789-197 2/2

