

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) -8 SEP 1925

Received at London Office.....

Date of writing Report 10 When handed in at Local Office 7/9/10 25 Port of **NEWCASTLE-ON-TYNE**

No. in Survey held at **Newcastle**. Date, First Survey **26th May** Last Survey **31st July** 19 **25**
Reg. Book. (Number of Visits... 114)

36724 on the **Waipahi** Tons { Gross **1720**
Net **1080**

Built at **Newcastle** By whom built **Hothumberland S.B.C. Yard** No. **388** When built **1925**

Owners **Union S.S. Co. of New Zealand Ltd.** Port belonging to **Wellington N.Z.**

Electric Light Installation fitted by **Campbell Isherwood & Co. Ltd.** Contract No. **388**. When fitted **1925**

System of Distribution **Double wire** ✓

Pressure of supply for Lighting **220** ✓ volts, Heating **—** 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 **Engine room port + starboard side** ✓, 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 **—**

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 **Power switchboard on port side, lighting switchboard on aft bulkhead starboard side** ✓ 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, 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 **For power tripole pole circuit breaker fitted with overload, no volt + reverse current release, on each dynamo, Single pole switch + double pole fuses on each outgoing circuit. For lighting D.P.C.O.S on dynamo mains + SP switches + D.P. fuses on outgoing circuits** ✓

Instruments on main switchboard **4** ✓ ammeters **4** ✓ 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 **earth lamps coupled to earth through switches + fuses to earth** ✓

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** ✓



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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 3.96 on lighting, 4.6 on power

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 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 Cables run in steel channel bed, covered by steel covers secured by means of studs & nuts.

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 no

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

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 lead

Earthing Connections, state what earthing connections are fitted and their respective sectional areas 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 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, are separate screens provided for the use of oil and electric side lights yes

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 no

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

where are the controlling switches situated no, how are the cables led no

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

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

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 of vertical

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, if not of this type, state distance of the combustible material horizontally or vertically above the motors no and no

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 no

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 no

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office no

PARTICULARS OF GENERATING PLANT.

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	3	60	220	273	300	Diesel engine Vickers Petter		
AUXILIARY	1	10	220	45.5	375	Single cylinder steam engine		
EMERGENCY								
ROTARY TRANSFORMER								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR (cable)	3	.4064	61	.093	273	84	V.I.R	L.C. A+B
	AUXILIARY GENERATOR	2	.02214	7	.064	45.5	10	do	do
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	2	.00701	7	.036	10	5	do	do
	BOLLER ROOM	2	.00701	7	.036	15	40	do	do
	Acc midships	2	.00701	7	.036	12	38	do	do
	Acc forward	2	.00701	7	.036	12	38	do	do
	WIRELESS	2	.00299	3	.036	5.0	200	do	do
	SEARCHLIGHT								
	MASTHEAD LIGHT	2	.00194	3	.029	.5	150	do	Lead cov + arm'd
	SIDE LIGHTS	2	.00194	3	.029	.5	40	do	do
	COMPASS LIGHTS	2	.00194	3	.029	.1	20	do	Lead cov
	STEER LIGHTS	2	.00194	3	.029	.5	210	do	Lead cov + arm'd
	CARGO LIGHTS	2	.00194	3	.029	1.8	60	do	Flammable protected
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.02214	7	.064	35	40	V.I.R	Lead cov + arm'd
	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	1	.00194	3	.029	5.0	20	do	do
	ENGINE TURNING GEAR								
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP	1	.00194	3	.029	5.0	20	do	do
	WINDLASS	1	.12	37	.064	132	360	do	Lead cov + braided
	WINCHES, FORWARD	4	.1	19	.083	134	264	do	do
	WINCHES, AFT	4	.1	19	.083	134	200	do	Lead cov + braided
	STEERING GEAR								
	WORKSHOP MOTOR								
	VENTILATING FANS	1	.00194	3	.029	3	40	do	Lead cov + braided

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.

CAMPBELL & ISHERWOOD, LTD

PER *John W. Wade*

Electrical Engineers.

Date *31st Aug 1925*

COMPASSES.

Distance between electric generators or motors and standard compass *100 feet*

Distance between electric generators or motors and steering compass *96 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *.5* Ampères *on the* ~~top~~ standard compass *7* feet from steering compass.

A cable carrying *.5* Ampères *7* feet from standard compass *on the* ~~top~~ steering compass.

A cable carrying *5.4* Ampères *4.6* feet from standard compass *7* 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 *nil*

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.

FOR THE NORTHUMBERLAND SHIPBUILDING Co., LTD.

R. Murray Jellicoe

Builder's Signature.

Date *2nd Sept 1925*

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. _____)

The above installation is in accordance with the Society's Rules. The vessel is eligible in my opinion for notation elec light, wireless

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

W.T. Badger
11/9/25

Total Capacity of Generators *190* Kilowatts

The amount of Fee ... £ *36* : — { When applied for, *30/7/19.25*
 Travelling Expenses (if any) £ : : { When received, *11/8/19.25* *W.P.*

W.T. Badger
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute _____

Assigned _____

Im. 9. 22.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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