Appl. 18.

No. 9359

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of sailing Engrs' Report 30 - 6 1925 When handed in at Local Office 11 - 6 - 1925 Port of Belfast

No. in Reg. Book. Survey held at Belfast. Date, First Survey 17th March Last Survey 27th June 1925 (Number of Visits 15)

on the New Steel M.S. "Port Dunedin" Tons { Gross / Net

Built at Belfast. By whom built Workman Clark & Co Ltd. Yard No. 447 When built 1925

Owners Commonwealth & Dominion Line Port belonging to London.

Electric Light Installation fitted by Sunderland Forge & Engineering Co. Contract No. 447 When fitted 1925

System of Distribution Double 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 In Main Engine Room (2 on Port side & 1 on Stbd 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* In Main Engine Room, Fore & Aft Switch Rooms, Forecastle & Poop, *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* In same Compt

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* Triple-Pole Overload & Reverse Current Circuit Breakers, 3rd Pole acts as equalizer. Double Pole Overload Circuit Breakers, & Double Pole Switches & Fuses on outgoing circuits

Instruments *on main switchboard* 4 *ammeters* 3 *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* E.L. Circuits Single Wire

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* 9 4.5

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* Metal Clips Lead Covered & Braided Cable. Main Cables on 2nd Deck protected by sheet iron cover.

If cables are run in wood casings, are the casings and caps secured by screws —, *are the cap screws of brass* —, *are the cables run in separate grooves* —. *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* ——

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*

Emergency Supply, *state position and method of control of the emergency supply and how the generator is driven* Emergency generator on 2nd Deck. driven by Diesel Engine Double Pole Overload Circuit Breaker & 4 Pole Change Over Switch.

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* ——,

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

, how are the cables led ✓

where are the controlling switches situated ✓

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

Arc Lamps, *other than searchlight lamps, No. of* —, *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 Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	3	210	220	955	210	Diesel Engine		
AUXILIARY ...								
EMERGENCY ...	1	12	220	55	375	do. do.		
ROTARY TRANSFORMER								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND. No.	Diameter.	Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	MAIN GENERATOR...	6	1 ✓	127	103	955	230	V.I.R.	Lead Covered & Braided
	AUXILIARY GENERATOR ...								
	EMERGENCY GENERATOR ...	2	·04 ✓	19	052	55	30	do.	do.
	ROTARY TRANSFORMER... ...								
	AUXILIARY SWITCHBOARDS ...								
	ENGINE ROOM								
	BOILER ROOM								
	GALLEY	2	·25 ✓	37	093	153·9	80	do.	do.
	FORD. HEATING	2	·15 ✓	37	072	135	224	do.	do.
	AFT HEATING	2	·100 ✓	19	083	108	168	do.	do.
	WIRELESS	2	·0095 ✓	7	·029	17	130	do.	do.
	SEARCHLIGHT								
	MASTHEAD LIGHT...	2	·002 ✓	3	029	·5	640	do.	do.
	SIDE LIGHTS	2	·002 ✓	3	029	·5	112	do.	do.
	COMPASS LIGHTS	2	·002 ✓	3	029	·14	40	do.	do.
	POOP LIGHTS								
	CARGO LIGHTS								
	ARC LAMPS		·002 ✓	3	029	3·4	50		
	HEATERS	2	·003 ✓	3	036	9·	40	do.	do.

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND. No.	Diameter.	Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	BALLAST PUMP	1	·15 ✓	37	072	135	260	V.I.R.	Lead Covered & Braided
	MAIN BILGE LINE PUMPS ...	1	·100 ✓	19	083	64	72	do.	do.
	GENERAL SERVICE PUMP ...	1	·100 ✓	19	083	71	108	do.	do.
	EMERGENCY BILGE PUMP ...								
	SANITARY PUMP	1	·100 ✓	19	083	107	171	do.	do.
	CIRC. SEA WATER PUMPS ...	1	·15 ✓	37	072	135	162	do.	do.
	CIRC. FRESH WATER PUMPS	2	·100 ✓	19	083	107	99	do.	do.
	AIR COMPRESSOR	2	·15 2 in Parallel	37	072	282	252	do.	do.
	FRESH WATER PUMP	1	·0225 ✓	7	064	40·5	96	do.	do.
	ENGINE TURNING GEAR ...	2	·060 ✓	19	064	80	100	do.	do.
	ENGINE REVERSING GEAR ...	1		7	064	21·5	60	do.	do.
	LUBRICATING OIL PUMPS ...	2	·0225 ✓	7	064	40	90	do.	do.
	OIL FUEL TRANSFER PUMP	2	·007 ✓	37	036	21·5	72		
	WINDLASS	1	·10 ✓	19	083	80	315	do.	do.
	WINCHES, FORWARD	8	·25 ✓	37	093	228	180	do.	do.
	WINCHES, AFT	6	·25 ✓	37	093	228	185	do.	do.
	STEERING GEAR	2	·100 ✓	19	083	114	40	do.	do.
	WORKSHOP MOTOR	2	·007 ✓	7	036	22	164	do.	do.
	VENTILATING FANS	4 1	·007 ✓	7	036	14 11 23	60 135 54	do.	do.
	REFRIG. MACHINES	2	·75 ✓	91	103	470	90	do.	do.
	BRINE PUMPS	3	·0225 ✓	7	064	46	150	do.	do.
	COOLER FANS.	3	·030 ✓	19	044	47	486	do.	do.
	REFRIG. CIRCULATING	1	·0225 ✓	7	064	18	270	do.	do.
	OVERHEAD CRANE	1	·100 ✓	19	083	106	150	do.	do.
	OIL PURIFIERS	3	·007 ✓	7	036	16·6	110	do.	do.
	CAPSTAN	2	·100 ✓	19	083	124	72	do.	do.
	BOILER FEED	1	·007 ✓	7	036	16·6	110	do.	do.

0064 3/2

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.

P.Pro The Sunderland Forge & Eng. Co.Otd.

W Park, Electrical Engineers. Date 1st June, 1925.

COMPASSES.

Distance between electric generators or motors and standard compass 160 feet Generators & Compass
40 do Motors do

Distance between electric generators or motors and steering compass 160 do Generators do.
32 Motors

The nearest cables to the compasses are as follows :—

A cable carrying 2·3 Ampères 4 feet from standard compass 6 feet from steering compass.

A cable carrying ·14 Ampères 2 feet from standard compass 2 feet from steering compass.

A cable carrying ✓ Ampères ✓ 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 No degrees on all course in the case of the standard compass, and No degrees on all course in the case of the steering compass.

PRO WORKMAN, CLARK & CO., LIMITED,
W. A. Hume
ASSISTANT SECRETARY.
Builder's Signature. Date

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 is well fitted and in accordance with the Rules, and the Generators & Motors were found satisfactory on trial under working Conditions.

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

WD
15/6/25.

Total Capacity of Generators 630. Kilowatts

The amount of Fee ... ... £ Half : 5 0 :
Charged on 1st Entry Weekly Report.
Travelling Expenses (if any) £ ✓ :

When applied for, 29-5-1925
When received, 4-6-1925

William Butler
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

1m.9.22.—Transfer.

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