

Rpt. 13.

No. 10,309

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

RECEIVED
6 FEB 1930

Received at London Office

Date of writing Report 31st JAN. 1930. When handed in at Local Office 5-2-1930 Port of Belfast.

No. in Survey held at Reg. Book. 26802. on the Steel Ss. "LINDENBANK." Date, First Survey 2nd Aug '29 Last Survey 15th Jan 1930 (Number of Visits.....12.....)

Built at Belfast. By whom built Workman Clark (1928) Ltd Yard No. 509. When built 1930. Owners ANDREW WEAVER & CO Port belonging to

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENGINEERING CO^{LTD} Contract No. 509 When fitted 1930.

System of Distribution DOUBLE WIRE

Pressure of supply for Lighting 110 volts, Heating - volts, Power - volts.

Direct or Alternating Current, Lighting DIRECT. Power -

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 -

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 ROOM, STARBOARD 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 YES

Main Switch Boards, where placed ENGINE ROOM STARBOARD 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 - and -

are they constructed wholly of durable, non-ignitable 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 insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework YES.

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 DOUBLE POLE

SWITCH & FUSES FOR GENERATOR. SINGLE POLE SWITCHES & FUSES FOR EACH CIRCUIT.

Instruments on main switchboard 1 ammeters 1 voltmeters - synchronising device for paralleling purposes.

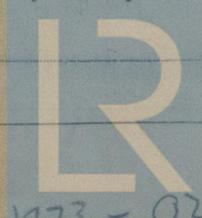
Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system LAMPS TO EARTH THRO' SWITCHES & FUSES.

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.

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W473-028262

Cables: Single, twin, concentric, or multicore SINGLE & TWIN. 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 5 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 —.

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 LEAD COVERED AND BRAIDED RUN IN GALV IRON PIPE LEAD COVERED ARMOURED & BRAIDED IN ENGINE ROOM.

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 VIII YES.

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

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 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 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 —.

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 —.

Fittings, are all fittings on weather decks, in storerooms 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 —, are the coils self-contained and readily removable for replacement —, are the brushes, brush holders, terminals and lubricating arrangements as per Rule —, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material —, are they protected from mechanical injury and damage from water, steam or oil — are their axes of rotation fore and aft —, 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 —, 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 —.

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.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	12 1/2 KW.	110	114	340 W.C. STEAM ENGINE		
AUXILIARY ...							
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. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	2	.1	19	.083	114	20	RUBBER	L.C.A. & B.
	EQUALISER CONNECTIONS ...								
	AUXILIARY GENERATOR ...								
	EMERGENCY GENERATOR ...								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS ...								
	ENGINE ROOM & B. ROOM.	2	.007	7	.036	8	30	do.	do.
	Boiler Room ...								
	ACCOMMODATION ...								
	NAV. & FORD ACCOMM.	2	.01	7	.044	17	300	do.	do.
	MIDSHIP & AFT ACCOM.	2	.007	7	.036	18	80	do.	do.
	CARGO LIGHTING	2	.0225	7	.064	27.7	80	do.	do.
	WIRELESS ...	2	.0225	7	.064	13	120	do.	do.
	SEARCHLIGHT ...								
	MASTHEAD LIGHT...	2	.002	3	.029	.35	600	do.	L.C. & B.
	SIDE LIGHTS ...	2	.002	3	.029	.35	60	do.	do.
	COMPASS LIGHTS ...	2	.002	3	.029	.18	20	do.	do.
	POOP LIGHTS ...								
	CARGO LIGHTS ...	2	.002	3	.029	3.24	200	do.	do.
	ARC LAMPS ...								
	HEATERS ...								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	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 ...								
	VENTILATING FANS ...								

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 SUNDESLAND FORGE & ENG. CO. LTD., Electrical Engineers. Date 3.2.30.

Thos. Thompson

COMPASSES.

Distance between electric generators or motors and standard compass 140 FEET.

Distance between electric generators or motors and steering compass 130 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 17 Ampères 25 feet from standard compass 20 feet from steering compass.

A cable carrying 4 Ampères 5 feet from standard compass 5 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 nil degrees on all courses in the case of the standard compass, and nil degrees on all courses in the case of the steering compass.

P&O WORKMAN CLARK (1928) LIMITED.

F. Cunningham
 SECRETARY

Builder's Signature. Date

Is this installation a duplicate of a previous case YES. If so, state name of vessel *Forthbank.*

General Remarks (State quality of workmanship, opinions as to class, &c. *This installation has been constructed under special survey. The materials and the workmanship are sound and good. It has been tried under working conditions with satisfactory results. In my opinion the vessel is eligible for notation "Electric Light".*

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

5/3/30

Total Capacity of Generators 12½ Kilowatts.

The amount of Fee ... £ 12 : 10 : { When applied for, 5-2-1930

Travelling Expenses (if any) £ : : { When received, 1/4/30

John. K. Williams.
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *Elec Lt.*

Im. 127. — Transfer. (The Surveyors etc. requested not to write on or below the space for Committee's Minute.)