

RETAIN

Rpt. 13.

No. 31271

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 29 SEP 1933

Date of writing Report 19 When handed in at Local Office 28 SEP 1933 Port of SUNDERLAND

No. in Survey held at Sunderland. Date, First Survey Aug 16 Last Survey Aug 28 1933
 Reg. Book. Supp. (Number of Visits.....5.....)
 39011. on the S. S. Bothaven. Tons { Gross 965
 Net 555
 Built at Sunderland. By whom built S.P. Austin Yard No. 328. When built 1933
 Owners Cory Colliers Ltd. Port belonging to London.
 Electric Light Installation fitted by The Sunderland Forge & Eng. Co. Contract No. 328. When fitted 1933.
 Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution Double. Wise

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. —, if not compound wound state distance between each generator —

Where more than one generator is fitted are they arranged to run in parallel no., is an adjustable regulating resistance fitted in series with each shunt field no.

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 in front of engines.

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 on aft bulkhead.

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 on dynamo mains. Single pole switch + D.P. fuses on each outgoing circuit

Instruments on main switchboard one ammeters one. 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.

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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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 3.8 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, armoured & braided cables clipped to the underside of decks with clips

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 none fitted

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 none fitted

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 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 yes.

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 fittings in holds, 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 —

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 —

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	1	3.75	110	34	480	Single Cylinder	Steam engine	
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

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	.0396	19	.052	34	64	26	Y-I-R	L.C. A+braided
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.00701	7	.036	5.5	24	30	50	50
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION	1	.01046	7	.044	7.0	31	165	50	50
OFFICE	1	.00701	7	.036	1.5	24	190	50	50
WIRELESS									
SEARCHLIGHT	1	.00152	1	.044	.5	6.1	195	50	50
MASTHEAD LIGHT	1	.00152	1	.044	.25	6.1	30	50	Lead covered.
SIDE LIGHTS	1	.00152	1	.044	.25	6.1	15	50	Lead covered
COMPASS LIGHTS	1	.00152	1	.044	.5	6.1	210	50	Lead covered
STEERAGE LIGHTS	1	.00152	1	.044	.5	6.1	210	50	Lead covered
CARGO LIGHTS	1	.00194	3	.029	3.0	7.8	190	50	50
ARC LAMPS									
HEATERS									

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										
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.

Sunderland Forge & Engineering Co Ltd
D. S. Gurney

Electrical Engineers.

Date *21-9-1933*

COMPASSES.

Distance between electric generators or motors and standard compass *167 feet.*

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying *.25* Ampères *on the* feet from standard compass — feet from steering compass.

A cable carrying — Ampères — feet from standard compass — 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

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be *nil* degrees on *all* course in the case of the standard compass, and — degrees on — course in the case of the steering compass.

FOR S. P. AUSTIN & SON, LIMITED.

G. Young
MANAGER.

Builder's Signature.

Date *22/9/33.*

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 foregoing installation has been fitted in accordance with the requirements & on completion the inst was tested & found to be satisfactory. The vessel is eligible ^{in my opinion} for notation "Elec. light"

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

Elec. Light
L.H.
4/10/33.

Total Capacity of Generators *3.75* Kilowatts.

The amount of Fee ... £ *5* :- : *28 Aug 1933*

Travelling Expenses (if any) £ : : *12 Sep 1933*

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

Committee's Minute

Assigned *Elec Lt*



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