

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... JUN 19 1925

Date of writing Report 10 When handed in at Local Office 3/6/25 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle. Date, First Survey 20th March/24 Last Survey 23rd April 1925
Reg. Book (Number of Visits... 38)

Built at Newcastle. By whom built Sir W. G. Armstrong Whitworth & Co. Ltd. Card No. 971 When built 1925
Owners The Cunard S. S. Co. Ltd. Port belonging to Liverpool

Electric Light Installation fitted by Sir W. G. Armstrong Whitworth & Co. Ltd. Contract No. 971 When fitted 1925

System of Distribution Three wire with earthed neutral
Pressure of supply for Lighting 110 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

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 aft end on centre line
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 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 Engine room aft, above dynamo on platform. Emergency board in dynamo room on boat deck.
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

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

frame effectively earthed. 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 2-1500 Amp S.P. Circuit Breakers mechanically & electrically interlocked with overload & time limit, 1-1500 Amp S.P.C.B. hand operated with overload & time limit & reverse current release.

Outgoing circuits 1-500 Amp A.P. overload & time limit C.B., 7-200 Amp S.P., 7-150 Amp ditto, 6-75 Amp S.P. knife switch, 6-75 Amp S.P. C.O.S., 3-25 Amp S.P. C.O.S.

Instruments on main switchboard 2 ammeters 1 with C.O.S. voltmeters {Paralleling plugs & sockets} 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 breaker with ammeter

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 + twin 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 Shallo

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 Galvanised iron piping for braided cables in 3rd class acc. K.I. Rim wood casing lead covered + arm'd braided cables clipped to beams on perforated steel plating

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 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 Neutral cable earthed through resistance taking 60 amps. Sectional area of earthing 5 sq. ins. are their connections made as per Rule Yes

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 In motor house on boat deck
Internal combustion 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 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 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 Yes
how are the cables led
where are the controlling switches situated Yes

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

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

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 axes 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 Yes and Yes

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

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	2	300	225	1333	1000	Steam turbine			
AUXILIARY									
EMERGENCY	1	32	225	142	650	Internal Combustion engine	Petrol for starting Paraffin for running		
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...	8	.6062	91	.093	1333	40	V.I.R.	Taped & braided
	AUXILIARY GENERATOR	8	.6062	91	.093		40	"	do
	EMERGENCY GENERATOR	2	.1478	37	.072	142	36	"	do
	ROTARY TRANSFORMER...	1	.02214	7	.064		40	"	do
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM								
	BOILER ROOM								
									For main feeds emergency feeds and neutral feeds see book of diagrams
	WIRELESS	3	.00701	7	.036	10	180	V.I.R.	taped & braided
	SEARCHLIGHT								
	MASTHEAD LIGHT...	2	.00455	7	.029	.91	4.5	"	do
	SIDE LIGHTS...	2	.00299	3	.029	.91	350	"	do
	COMPASS LIGHTS...	2	.00194	3	.029	.27	39.70+30	"	do
	STERN LIGHT	2	.00455	7	.029	.3	810	"	do
	CARGO LIGHTS	2	.00299	3	.036	3.6	see book	"	do
	WATER LAMPS HALF WATT	2	.00299	3	.036	2	of diagrams	"	do
	HEATERS								See book of diagrams

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	.1029	19	.053	115	120	V.I.R.	Lead cov. A + braided
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP	1	.06	19	.064	58	320	"	Taped & braided
	SANITARY PUMP	1	.1009	19	.083	102	135	"	Lead cov. A + B
	CIRC. SEA WATER PUMPS	2	.00455	7	.029	20	60+50	"	do
	CIRC. FRESH WATER PUMPS								
	LIFT MOTOR	1	.00455	7	.029	16.5	100	"	Taped & braided
	WINCHES	1	.00299	3	.036	8	80	"	do
	ENGINE TURNING GEAR	2	.03960	19	.052	39	80+120	"	Lead cov. A + B
	ENGINE REVERSING GEAR								
	PRINTING MACHINES	1	.00299	3	.036	9.05	130	"	Taped & braided
	OIL FUEL TRANSFER PUMP	1	.00299	3	.036	3.3	300	"	Lead cov. A + braided
	Rocking Horse	2	.00299	3	.036	9.2	50+60	"	Taped & braided
	WINCHES, FORWARD								
	WINCHES, BRINE PUMPS	3	.00701	7	.036	19.0	85.95.105	"	Lead cov. Arm + B
	STEERING GEAR	2	.1478	37	.072	135	SEE BOOK OF DIAGRAMS	"	SEE BOOK OF DIAGRAMS
	WORKSHOP MOTOR	1	.00455	7	.029	14.7	30	"	Lead cov. arm + braided
	VENTILATING FANS								
	Electrician's Comms	2	.00299	3	.036	9	20	"	do
	Refrigerator Motors	2	.1964	37	.083	14.6	120+130	"	do
	"	2						"	do
	Boiler Room Fan	2	.1964	37	.083	17.4	250+260	"	do
	Sounding Machine	1	.00455	7	.029	7.5	280	"	Taped & braided
	Red Herd	2	.00455	7	.029	14	160+250	"	do
	Dish Washes	2	.00455	7	.029	6.8	115+160	"	do
	Potato Peeler	1	.00455	7	.029	6.7	115	"	do
	Lough knives	1	.00455	7	.029	12.4	75	"	do

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.

Sir W.G. Armstrong Whitworth & Co. Ltd.

Electrical Engineers.

Date 3/6/25.

COMPASSES.

Distance between electric generators or motors and standard compass From generators 19.5 feet nearest motor 27 feet

Distance between electric generators or motors and steering compass " " 19.5 feet " " 25 feet

The nearest cables to the compasses are as follows:—

A cable carrying .27 Ampères 1 feet from standard compass 4 feet from steering compass.

A cable carrying .27 Ampères 10 feet from standard compass 1 feet from steering compass.

A cable carrying 1.8 Ampères 12 feet from standard compass 4 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* course in the case of the standard

compass, and *nil* degrees on *all* course in the case of the steering compass.

SIR W.G. ARMSTRONG, WHITWORTH & CO. LTD

W.G. Armstrong

Builder's Signature.

Date 3/6/25.

Is this installation a duplicate of a previous case *yes* If so, state name of vessel *"Auronia"*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The above installation is in accordance with the Society's Requirements. The vessel is suitable in my opinion for notation etc light wireless

*Elec Dept.
W.T.
5/6/25*

Total Capacity of Generators *600* Kilowatts

The amount of Fee ... £ *47: 6* : When applied for, *4/5/25*

Travelling Expenses (if any): £ : : When received, *30/5/25*

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

Committee's Minute

Assigned

Elec Lt.

Im. 8. 22.—Transfer. (The Surveyors are requested not to write on or below this space for Committee's Minute.)