

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office MON 27 AUG 1923

Date of writing Report 23 Aug 23 When handed in at Local Office 23 Aug 23 Port of Bilbao

No. in Survey held at Bilbao Date, First Survey \_\_\_\_\_ Last Survey \_\_\_\_\_ 19\_\_\_\_  
Reg. Book. \_\_\_\_\_ (Number of Visits.....)

12642 on the STEEL TWIN SCR "ALFONSO XIII" Tons { Gross 10137  
Net 5564

Built at Sestao, Bilbao By whom built Sociedad Esp. de Constr. Naval Yard No. 1 When built 1923

Owners La Compania Transatlantica Port belonging to Barcelona

Electric Light Installation fitted by Shipbuilders Contract No. \_\_\_\_\_ When fitted 1923

System of Distribution Double wire system ✓

Pressure of supply for Lighting 110 ✓ volts, Heating none ✓ volts, Power 110 ✓ 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 no, shunt ✓  
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 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 Fore end of engine room ✓

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 reasonably ✓

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 engine room port side above condenser ✓

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 space ✓

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 not specially protected ✓, 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 moderate ✓, 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 \_\_\_\_\_, 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 Generator

Automater circuit breaker on one pole, knife switch on both poles fuses on each pole. Outgoing circuit Double pole, switches & fuses.

Instruments on main switchboard 3 ✓ ammeters 3 ✓ voltmeters no ✓ 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  
connected in Series across poles with earth in centre ✓

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 ✓

Wood work protected by uralite slabs, bases of slate & porcelain.



**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 *6 volts*

**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 *none installed* ✓

**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, lead covered and steel tape armoured with jute outer covering, & taped & banded in wood casing & piping* ✓

**Support and Protection of Cables**, state how the cables are supported and protected *W.I. clips secured by tub screws or run in W.I. tubing* ✓

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 *none fitted, portable outside*

**Joints in Cables**, state if any, and how made, insulated, and protected *yes, wires married securely, soldered with resin flux, pure rubber tape, finished with black waterproof tape*

**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 *none fitted double wire system* ✓, 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 *dynamo direct coupled to petrol engine on Boat Deck, switchboard in same compartment with two change over switches, one for wireless, one for lighting*

**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, protected by cast iron covers* ✓, 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* ✓, how are the cables led \_\_\_\_\_

where are the controlling switches situated \_\_\_\_\_

**Searchlight Lamps**, No. of *none fitted*, whether fixed or portable \_\_\_\_\_, are their fittings as per Rule \_\_\_\_\_

**Arc Lamps**, other than searchlight lamps, No. of *none*, 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, reasonable* are their axis of rotation fore and aft *large motors, 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 *none* ✓, 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 *none fitted* ✓

**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 oil* ✓

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.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	3	70	110	636	500	steam engine			
AUXILIARY	none								
EMERGENCY	1	5	110	45		petrol engine	petrol		
ROTARY TRANSFORMER	none								

  

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	4.819	61	.101	636	110	rubber	lead & armoured
	AUXILIARY GENERATOR	none							
	EMERGENCY GENERATOR	1	0.0400	19	.052	45	12	rubber	in tubing
	ROTARY TRANSFORMER	none							
	AUXILIARY SWITCHBOARDS	none							
	ENGINE ROOM	1	0.600	19	.064	75	60		
	BOILER ROOM	1	1.009	19	.053	29	360		
	Emergency	1	14.750	37	.072	40	210		
	1st class, Iron deck	1	24.65	37	.093	158	480		
	1st class, Deck deck	1	19.64	37	.083	117	480	rubber	typed & banded in wood casing where possible to damage in iron tubing or protected by sheet with guards
	1st class, Upper deck	1	19.64	37	.083	114	360		
	Saloon	1	1.009	19	.083	83	180		
	Crew	1	19.64	37	.083	122	300		
	3rd class	1	14.75	37	.072	102	300		
	2nd class	1	14.75	37	.072	113	150		
	WIRELESS	1	0.600	19	.064	14	210		wood casing
	SEARCHLIGHT	none							
	MASTHEAD LIGHT	1	0.0152	1	.044	1.2	840	rubber	iron tubing
	SIDE LIGHTS	1	0.0152	1	.044	1.2	72		do
	COMPASS LIGHTS	1	0.0152	1	.044	6	30		wood casing
	POOP LIGHTS	1	0.0152	1	.044	1.2	900		do
	CARGO LIGHTS	1	19.64	37	.082	24	300		wood casing & iron tubing
	ARC LAMPS	none							
	HEATERS	none fitted							

  

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	1	0.34	19	.044	25	60	rubber	in tubing
	ENGINE REVERSING GEAR	—							
	LUBRICATING OIL PUMPS	—							
	OIL FUEL TRANSFER PUMP	—							
	WINDLASS	—							
	WINCHES, FORWARD	—							
	WINCHES, AFT	—							
	STEERING GEAR	—							
	WORKSHOP MOTOR	1	0.34	19	.044	25	50	rubber	in iron tubing
	VENTILATING FANS	23	1.009	19	.083	65	300	do	do
	lift	1	0.145	19	.152	50	2120	do	wood casing

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.

*Frank W Benson*

Electrical Engineers.

Date *23<sup>rd</sup> August 1923*

COMPASSES.

Distance between electric generators or motors and standard compass *nearest motor 12 1/2 metres*

Distance between electric generators or motors and steering compass *nearest motor 11 metres*

The nearest cables to the compasses are as follows:—

A cable carrying *3* Ampères *1* feet from standard compass *6* feet from steering compass.

A cable carrying *3* Ampères *7* feet from standard compass *1* 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* course in the case of the standard compass, and *Nil* degrees on *all* course in the case of the steering compass.

*Frank W Benson*

Builder's Signature.

Date *23<sup>rd</sup> Aug 1923*

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, etc)

*This Installation has been efficiently fitted, the materials and workmanship are good and it has been examined under working conditions and found satisfactory. In my opinion the vessel is eligible to be classed with record of Electric Light-Fitted.*

It is submitted that this vessel is eligible for *Electric Light* THE RECORD. *BT 28/8/23*

Total Capacity of Generators *215* Kilowatts

The amount of Fee ... .. £

Travelling Expenses (if any): £

When applied for,	19
	19
When received,	19
	19

*Y Thomas Miller*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

*FRI SEP 7 1923*

*TUE OCT 9 1923*

Assigned

*TUE 11 DEC 1923*

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

