

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office. THU. 13 SEP. 1923

Date of writing Report 5th Sept. 1923 When handed in at Local Office 1923 Port of Subao

Survey held at Ferrol Date, First Survey 31st Aug. 1923 Last Survey 31st Aug. 1923
 (Number of Visits.....)

598 on the S.S. CRISTOBAL COLON Tons { Gross 10137
 Net

Built at Ferrol By whom built S E de C R Yard No. 5 When built 1923

Owners La Compania Vasca de Navegacion 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 — volts, Power 110 volts.

System of Alternating Current, Lighting Direct Power Direct

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 wound

Are they over compounded 5 per cent. ✓, if not compound wound state distance between each generator six feet

Are more than one generator 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, short circuited yes

Are the lubricating arrangements of the generators as per Rule yes

Position of Generators Aft end of engine room, is the ventilation in way of the generators satisfactory yes, are they clear of all inflammable material yes

Are they 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

Are the bedplates and frames of the generating plant efficiently earthed yes, are the prime movers and respective generators in metallic contact yes

Position of 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 terminal 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

Are the 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 work 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 sufficiently high insulation resistance marble, if semi-insulating material is used, are all conducting parts connected to one pole and insulated from the slab with mica or micanite and the slab similarly insulated from its framework —, and is the switchboard 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 fuses yes, individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes

Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Generator - automatic circuit breaker on one pole and double pole switches & fuses on outgoing circuits - Double pole switches & fuses.

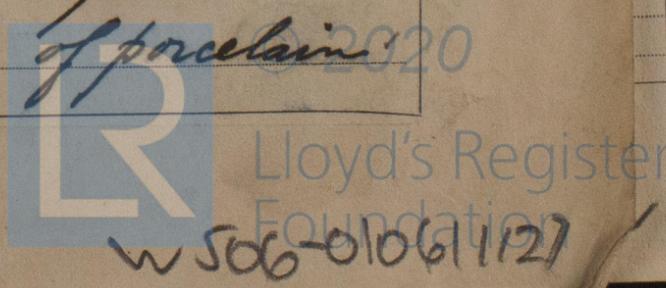
Instruments on main switchboard 3 ammeters 3 voltmeters — synchronising device for paralleling purposes. Earth lamp

Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth lamp

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes

Construction and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes

Good work protected by marble, bases & bridges of 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 *5 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 steel tape*

Support and Protection of Cables, state how the cables are supported and protected *armoured with jute covering & taped & leaded in W.I. Tubes or wood casing W.I. clips or WI tubes*

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, for cables outside*

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

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with neck 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 *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 *direct coupled to Petrol engine situated on boat deck, switchboard in same compartment with one change over switch for lighting & one for wireless*

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 *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 *---*, 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 *reasonably* are their axis of rotation fore and aft *obliquely*

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 *---*

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.	RPM per Min.		Fuel Used	Flash Point of Fuel	
MAIN	3	20	110	635	500	Steam Engine			
AUXILIARY	1	8	110	72	700	Petrol Engine	Petrol		
EMERGENCY	1	8	110	72	700	Petrol Engine	Petrol		
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	5	61	.101	635	110	Rubber	Lead & Armoured
	AUXILIARY GENERATOR	1	06	19	.064	72	12	do	do
	EMERGENCY GENERATOR	1	06	19	.064	72	12	do	do
	ROTARY TRANSFORMER	1	06	19	.064	72	12	do	do
	AUXILIARY SWITCHBOARDS	1	06	19	.064	42	60	do	do
	ENGINE ROOM	1	09	19	.08	30	360	do	do
	BOILER ROOM	1	12	19	.092	63	210	do	do
	Emergency	1	12	19	.092	72	480	do	Taped & leaded in wood casing where exposed to damage, in W.I. tubing or protection by sheet iron
	1st Class	1	25	37	.082	44	480	do	do
	do	1	20	37	.08	44	360	do	do
	do	1	10	19	.08	44	180	do	do
	do	1	20	37	.08	72	300	do	do
	2nd Class	1	14	37	.072	58	300	do	do
	2nd Class	1	14	37	.072	57	150	do	do
	WIRELESS	1	05	19	.064	24	210	Rubber	Wood casing & W.I. Tubes
	SEARCHLIGHT	1	06	19	.064	2.3	900	do	do
	MASTHEAD LIGHT	1	06	19	.064	2.3	70	do	do
	SIDE LIGHTS	1	048	19	.048	6	30	do	do
	COMPASS LIGHTS	1	064	19	.064	1.2	80	do	do
	POOP LIGHTS	1	064	19	.064	1.0	300	do	do
	CARGO LIGHTS	1	064	19	.064	1.0	300	do	do
	ARC LAMPS	1	064	19	.064	1.0	300	do	do
	HEATERS	1	064	19	.064	1.0	300	do	do

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	1	033	19	.048	25	60	Rubber	W.I. Tubes
	MAIN BILGE LINE PUMPS	1	033	19	.048	25	60	Rubber	W.I. Tubes
	GENERAL SERVICE PUMP	1	033	19	.048	25	60	Rubber	W.I. Tubes
	EMERGENCY BILGE PUMP	1	033	19	.048	25	60	Rubber	W.I. Tubes
	SANITARY PUMP	1	033	19	.048	25	60	Rubber	W.I. Tubes
	CIRC. SEA WATER PUMPS	1	033	19	.048	25	60	Rubber	W.I. Tubes
	CIRC. FRESH WATER PUMPS	1	033	19	.048	25	60	Rubber	W.I. Tubes
	AIR COMPRESSOR	1	033	19	.048	25	60	Rubber	W.I. Tubes
	FRESH WATER PUMP	1	033	19	.048	25	60	Rubber	W.I. Tubes
	ENGINE TURNING GEAR	1	033	19	.048	25	60	Rubber	W.I. Tubes
	ENGINE REVERSING GEAR	1	033	19	.048	25	60	Rubber	W.I. Tubes
	LUBRICATING OIL PUMPS	1	033	19	.048	25	60	Rubber	W.I. Tubes
	OIL FUEL TRANSFER PUMP	1	033	19	.048	25	60	Rubber	W.I. Tubes
	WINDLASS	1	033	19	.048	25	60	Rubber	W.I. Tubes
	WINCHES, FORWARD	1	033	19	.048	25	60	Rubber	W.I. Tubes
	WINCHES, AFT	1	033	19	.048	25	60	Rubber	W.I. Tubes
	STEERING GEAR	1	033	19	.048	25	60	Rubber	W.I. Tubes
	WORKSHOP MOTOR	1	093	19	.08	78	300	do	do
	VENTILATING FANS	1	049	19	.056	64	420	do	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.

H. Spiers

Electrical Engineers.

Date *Aug 29th 1923*

COMPASSES.

Distance between electric generators or motors and standard compass *40 feet*

Distance between electric generators or motors and steering compass *40 feet*

The nearest cables to the compasses are as follows:—

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

A cable carrying *3* Ampères *6* 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.

H. Spiers

Builder's Signature.

Date *Aug 29th 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, &c.)

This installation has been fitted under special Survey, the materials and workmanship are good and on completion examined under working conditions and found satisfactory. It is eligible in my opinion to be classed with record of Electric Light in the Register Book.

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

ms. 15/9/23

Total Capacity of Generators *218* Kilowatts

The amount of Fee ... £ *✓* When applied for, *✓* 19...
Travelling Expenses (if any): £ *✓* When received, *✓* 19...

Thomas Miller
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 18 SEP 1923 TUE. 30 OCT. 1923

Assigned TUES. 24 JUN 1924

TUES. 30 DEC. 1924
WED. 7 APR 1926
FRI. 1 MAY 1925 TUES. 16 NOV 1926
FRI. 30 APR 1926



Im. 8.22.—Transfer. (The Surrenders are requested not to write on or below the space for Committee's Minute.)