

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

WED. APR. 25 1923

Date of writing Report 10 When handed in at Local Office 24.4.23 Port of Belfast

No. in Survey held at Belfast Date, First Survey 1922 June 9, Last Survey March 22 1923
Reg. Book (Number of Visits 13)

on the Steel T. S. S. Oroya. Tons { Gross 12257
Net 4380

Built at Belfast By whom built Harland & Wolff Ltd Yard No. 506 When built 1923

Owners Pacific Steam Navigation Coy Port belonging to Liverpool

Electric Light Installation fitted by Harland & Wolff Ltd Contract No. 506 When fitted 1923

System of Distribution Double Wired System. Direct current.
Pressure of supply for Lighting 220 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 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

Position of Generators Main Generators On Dynamo Platform aft of Engine Basins
Emergency Generator In Emergency Dynamo Room. aft. Boat Deck.
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 Main Switchboard On Dynamo Platform. aft of Engine Basins.
Emergency " In Emergency Dynamo Room. aft 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

SUB 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 Yes, 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

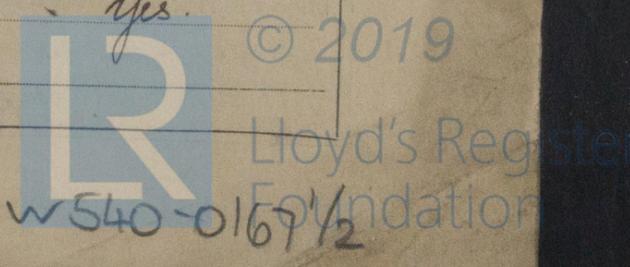
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Switchgear for each generator consists of one double pole overload and reverse current circuit breaker and one combined double pole and equalizer switch. Outgoing circuits protected by double pole switches and fuses, double pole circuit breakers or double pole fuses

Instruments on main switchboard 4 ammeters 2 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 fitted on each pole.

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 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 10 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 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 Clipped to perforated steel plating. Protected by lead covering or Lead Covered, Sealed, Steel Armoured and Braided overall.

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 Yes.

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 Yes.

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. Emergency circuits controlled by double pole change over switches placed on switchboard in Emergency Dynamo Room. Emergency dynamo direct coupled to Diesel 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 Waterlight on weather deck. Drip proof in Engine Room and Stokehold.

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 Yes.

where are the controlling switches situated Yes.

Searchlight Lamps, No. of 1, whether fixed or portable Yes. are their fittings as per Rule Yes.

Arc Lamps, other than searchlight lamps, No. of 1, 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 axis 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 totally enclosed. if not of this type, state distance of the combustible material horizontally or vertically above the motors 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			Revs. per Min.	DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	3	75	220	341		Reciprocating Steam Engine		
AUXILIARY								
EMERGENCY	1	75	220	341		Diesel Engine	Shale Oil	Above 150° F.
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...	2 per pole	2000	37	.083	341	50 ft.	Pure rubber and vulcanized rubber	Lead Covered.
	AUXILIARY GENERATOR								Lead Covered.
	EMERGENCY GENERATOR	2 per pole	2000	37	.083	341	50 ft.		Lead Covered, sealed steel armoured and braided.
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1 per pole	0070	7	.036	18.5	40 ft.		
	BOILER ROOM	1 per pole	0070	7	.036	13.5	60 ft.		
	WIRELESS	1 per pole	0225	7	.064	6.8	350 ft.		Lead Covered.
	SEARCHLIGHT					1.2	470 ft.		
	MASTHEAD LIGHT...	1 per pole	0030	3	.036	1.2	600 ft.		
	SIDE LIGHTS...	1 per pole	0030	3	.036	1.2	70 ft.		
	COMPASS LIGHTS	1 per pole	0030	3	.036	1.2	70 ft.		
	POOP LIGHTS						15 ft.		
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS	1 per pole	0030	3	.036	2.5	25 ft.	Lead Covered.	

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							Pure rubber and vulcanized rubber	
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP	1	1500	37	.072	100	500 ft.		Lead Covered and sealed steel armoured and braided through machinery spaces.
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP					32	Foot 100 ft. Star 160 ft.		Lead Covered, sealed steel armoured and braided.
	ENGINE TURNING GEAR	2	0225	7	.064				
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP								
	WINDLASS								
	WINCHES, FORWARD	2	2000	37	.083	150	280 ft.	Lead Covered	
	WINCHES, AFT MIDSHIP	2	2000	37	.083	160	180 ft.	Lead Covered	
	STEERING GEAR								
	WORKSHOP MOTOR	1	0080	3	.036	7	20 ft.	Lead Covered, sealed steel armoured and braided.	
	DRILL	1	0080	3	.036	7	28 ft.	Lead Covered	
	VENTILATING FANS								
	" 10 B.H.P.	5	0400	13	.052	49	240 ft.	Lead Covered	
	" 15 B.H.P.	2	0600	19	.064	60	200 ft.	Lead Covered	
	" 2 1/2 B.H.P.	6	0100	7	.044	11	160 ft.	Lead Covered	
	" 3/4 B.H.P.	5	0070	7	.036	3.8	200 ft.	Lead Covered	

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.



Electrical Engineers.

Date 21/4/23

COMPASSES.

Distance between electric generators or motors and standard compass Generators 170 ft. Nearest Motor 60 ft.
 Distance between electric generators or motors and steering compass " 160 ft " " 50 ft

The nearest cables to the compasses are as follows:—

A cable carrying 12 Ampères 12 feet from standard compass 10 feet from steering compass.
 A cable carrying 160 Ampères 70 feet from standard compass 60 feet from steering compass.
 A cable carrying 3.8 Ampères 50 feet from standard compass 40 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 Null degrees on all course in the case of the standard compass, and Null degrees on all course in the case of the steering compass.

FOR HARLAND & WOLFF, LTD.,

Builder's Signature.

Date 21/4/23

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 is well fitted & in accordance with the Rules. Materials & workmanship so far as could be seen good.
 The installation was tried under steam on full load & tested as required & found satisfactory & conforms with the Rules for a closed vessel.

It is submitted that this vessel is eligible for THE RECORD. Elec. Right. P.A. 27/4/23

Total Capacity of Generators 300 Kilowatts

The amount of Fee ... £ 39 : 0 0 :
 Travelling Expenses (if any) £ ✓ :
 When applied for, 24.4.1923
 When received, See Debt Book

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Im. 3.25.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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