

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

WED. APR. 25 1923

Date of writing Report

19

When handed in at Local Office

24.4.

1923

Port of

Belfast.

No. in Survey held at

Belfast

Date, First Survey 1922 June 9, Last Survey March 22 1923.

Reg. Book

on the

Steel T. S. S. Oroya.

(Number of Visits 13)

Built at

Belfast

By whom built

Harland & Wolff Ltd

Yard No. 506

Tons { Gross 12257
Net 4380

When built 1923.

Owners

Pacific Steam Navigation Co.

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.

Are the lubricating arrangements of the generators as per Rule

Yes.

Position of Generators

Main Generators, On Dynamo Platform aft of Engine Basing.

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 Basing.

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

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

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

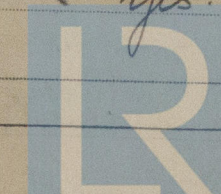
fitted on each pole.

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.



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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.
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, Served, Steel Armoured and Braided overall.
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 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.
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.
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. 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 Watertight 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.
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected.
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 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 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.
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			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. Amperes.	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...								
	EMERGENCY GENERATOR...	2 per pole	2000	37	.083	341	50 ft.		Lead Covered.
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS...								
	ENGINE ROOM...	1 per pole	0070	7	.036	18.5	40 ft.		Lead Covered, served steel armoured and braided.
	BOILER ROOM...	1 per pole	0070	7	.036	13.5	60 ft.		
	WIRELESS...	1 per pole	0225	7	.064	6.8	350 ft.	Pure rubber and vulcanized rubber	Lead Covered.
	SEARCHLIGHT...								
	MASTHEAD LIGHT...	1 per pole	0030	3	.036	1.2 Fore 470 ft. 1.2 Aft. 600 ft. 1.2 Port 70 ft. 1.2 Star 70 ft.			
	SIDE LIGHTS...	1 per pole	0030	3	.036				
	COMPASS LIGHTS...	1 per pole	0030	3	.036				
	POOP LIGHTS...								
	CARGO LIGHTS...								
	ARC LAMPS...								
	HEATERS...	1 per pole	0030	3	.086	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. Amperes.	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 steel armoured and braided through machinery spaces.
	SANITARY PUMP...								
	CIRC. SEA WATER PUMPS...								
	CIRC. FRESH WATER PUMPS...								
	AIR COMPRESSOR...								
	FRESH WATER PUMP...								
	ENGINE TURNING GEAR...	2	0225	7	.064	32	Port 100 ft. Star 160 ft.		Lead Covered, served steel armoured and braided.
	ENGINE REVERSING GEAR...							Pure rubber and vulcanized rubber	
	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 <u>Sack Drill</u> ...	1	0080	3	.086	7	20 ft.		Lead Covered, served steel armoured and braided.
	VENTILATING FANS...								
	" 10 B.H.P.	5	0400	13	.052	40	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 as 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 classed vessel.

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

W.A. 27/4/23.

Total Capacity of Generators 300 Kilowatts

The amount of Fee ... £ 39 : 0 0 : { When applied for, 24.4.1923

Travelling Expenses (if any) £ ✓ : { When received, See Debit Book

William Butler.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Im. 3.22.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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