

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 17 MAY 1928

Date of writing Report 1<sup>st</sup> May 1928 When handed in at Local Office 10 Port of HAMBURG.

No. in Survey held at 712 Date, First Survey 16<sup>th</sup> JAN. Last Survey 30<sup>th</sup> APRIL 1928  
Reg. Book. on the Steel Twin Sc. M. S. "PACIFIC GROVE" (Number of Vents 16)

Built at 712 By whom built DEUTSCHE WERKE Yard No. 213 When built 1928  
Owners TRANS. OCEANIC S.S. CO. Port belonging to LONDON

Electric Light Installation fitted by DEUTSCHE WERKE A.G. Contract No. When fitted 1928.

System of Distribution 3 wire insulated with direct current.  
Pressure of supply for Lighting 220 volts, Heating " 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 rating 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, clearly marked, and furnished with sockets yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched yes Are the lubricating arrangements of the generators as per Rule yes

Position of Generators Main engine room - 2 Port - 1 Stb. side.

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 axes 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 engine aft on elevated platform.

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, non-ignitable non-absorbent materials yes (Pencril), is all insulation of high dielectric strength and of permanently high insulation resistance yes

if semi-insulating material is used, are all conducting parts insulated from the sub with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework

and is the frame effectively earthed yes Are the fittings as per Rule regarding:— 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

breaker with overload and reverse current trip and a single pole equalizer switch interlocked with the circuit breaker that the equalizer switch must be closed before the circuit breaker. For each outgoing circuit: a fuse on each pole and a single pole switch on one pole.

Instruments on main switchboard 8 ammeters 4 voltmeters 1 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 Voltmeter with Ohm scale.

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

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes.



*The Gunnar Standard have been applied generally.*

**Cables:** Single, twin, *multicore* *yes*. *are the cables insulated and protected as per Tables IV or V of the Rules*

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *about 4 Volts.*

**Cable Sockets and other connections,** *are the ends of all cables having a sectional area of 0.04 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* *no paper insulator called*

**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* *in troughs, where they are exposed to mechanical risk, covered by sheet iron.*

*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 VIII* *yes*

**Refrigerated Chambers,** *if lights are fitted, are the cables and fittings in accordance with the special requirements* *Portable lamp in Ventilator Room only.*

**Joints in Cables,** *state if any, and how made, insulated, and protected* *Waterlight joint boxes.*

**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 Partitions,** *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 supply driven by 3 cyl. 45 C.S.F. Diesel Engine with hand starting arrangement connected to main British board.*

**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 in fuel house.*

*has each navigation lamp, an automatic indicator as per Rule* *yes*

**Secondary Batteries,** *are they constructed and fitted as per Rule* *✓*

**Fittings,** *are all fittings on weather decks, in storerooms and engine rooms and where 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* *✓*, *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 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* *✓*, *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, start and controllers constructed and fitted as per Rule* *yes*

**Lightning Conductors,** *where lightning conductors are required, are these fitted as per Rule* *Lead mesh*

**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.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	2	225	230	977	300	Hyd. 45 C.S.F. Diesel Motor	Diesel	170° F.	
AUXILIARY ...									
EMERGENCY ...	1	15	230	68	800	3 cyl. 45 C.S.F. Diesel Motor	Gas oil		
						solid injection with hand starting arrangement.			
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...	2x3	300	61	2.5	1000	2x30		
	EQUALISER CONNECTIONS	2	135	37	2.5		2x30		
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR	2x1	25	7	2.1	70	2x25		
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	Lead to main switchboard.							
	BOILER ROOM								
	ACCOMMODATION								
	Foreship...	2x1	16	7	1.7	13	2x60		
	Saloon...	2x1	16	7	1.7	13	2x40		
	Midship...	2x1	10	7	1.35	12	2x25		
	" 2	2x1	10	7	1.35	12	2x25	rubber	Lead covered and armoured.
	Midship...	2x1	10	7	1.35	6	2x65		
	Foreship, No. 1.	4x1	95	19	2.5	300	2x20		
	" 4.	4x1	240	61	2.25	650	2x70		
	Midship, No. 1.	2x1	150	37	2.25	300	2x40		
	" 18.	4x1	185	37	2.5	600	2x60		
	Cargolights 1	2x1	16	7	1.7	13	2x60		
	" 2.	2x1	10	7	1.35	15	2x70		
	WIRELESS	2x1	16	7	1.7	30	2x40		
	SEARCHLIGHT	2x1	10	7	1.35	25	2x80		
	MASTHEAD LIGHT...	2x2x1	1.5	1	1.4	0.2	2x60		
	SIDE LIGHTS...	2x2x1	1.5	1	1.4	0.3	2x15		
	COMPASS LIGHTS...	2x2x1	1.5	1	1.4	0.15	2x10-2x12		
	POOP LIGHTS	2x1	15	1	1.4	0.3	2x80		
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

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	50	19	1.85	110	2x30		
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP	2	10	7	1.35	25.5	2x25		
	EMERGENCY BILGE PUMP								
	SANITARY PUMP	2	95	19	2.5	178	2x30		
	CIRC. SEA WATER PUMPS	1	1.5	1	1.4	4.9	2x15		
	CIRC. FRESH WATER PUMPS	2	300	61	2.25	345	2x30		
	AIR COMPRESSOR	1	4	1	2.25	21	2x25		
	FRESH WATER PUMP	2	10	7	1.35	32	2x30		
	ENGINE TURNING GEAR	1	4	1	2.25	18	2x25		
	ENGINE REVERSING GEAR	1	10	7	1.35	37	2x30	rubber	Lead covered and armoured.
	LUBRICATING OIL PUMPS	2	6	1	2.75	23.5	2x30		
	OIL FUEL TRANSFER PUMP	1	185	37	2.5	355	2x90		
	WINDLASS	6							
	WINCHES, FORWARD	2	70	19	2.15	154			
	WINCHES, AFT	2							
	STEELING GEAR								
	(a) MOTOR GENERATOR...								
	(b) MAIN MOTOR	2	50	19	1.85	115	2x60		
	WORKSHOP MOTOR	1	4	1	2.25	16	2x35		
	VENTILATING FANS	3	2.5	1	1.8	10.3	2x10		
	CO <sub>2</sub> COMPRESSOR (main)	2	120	37	2.05	190	2x30		
	CO <sub>2</sub> FRESH WATER PUMP	1	6	1	2.75	24.5	2x35		
	CO <sub>2</sub> FRESH PUMP	2	16	7	1.7	44	2x20		
	REFRIG. COMP.	4	16	7	1.7	40	2x35		
	REFRIG. COMP.	1	16	7	1.7	42	2x35		
	REFRIG. COMP.	1	2.5	1	1.8	13.7	2x25		
	REFRIG. COMP.	3	2.5	1	1.8	10.3	2x30		
	REFRIG. COMP.	1	1.5	1	1.4	6	2x45		
	REFRIG. COMP.	1	2.5	1	1.8	44	2x30		



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.

The Guider are the

Electrical Engineers.

Date 2<sup>nd</sup> May 1928

#### COMPASSES.

Distance between electric generators or motors and standard compass 13 ac. } Double wires.

Distance between electric generators or motors and steering compass 10 ac. }

The nearest cables to the compasses are as follows:—

A cable carrying 0.15 Ampères close to feet from standard compass close to feet from steering compass.

A cable carrying " Ampères " feet from standard compass " 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 ye

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted ye

The maximum deviation due to electric currents was found to be nil degrees on " course in the case of the standard compass, and " degrees on " course in the case of the steering compass.

Deutsche Werke Kiel

Aktiengesellschaft

Builder's Signature.

Date 2. 5. 28.

Is this installation a duplicate of a previous case ye If so, state name of vessel "PACIFIC PRESIDENT"

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

This Electric Installation are of good quality. The conductors used are of the German Standard. The Society's Rules respecting conductors have been applied generally. The Installation is built and fitted under Special Survey in accordance with the approved plans, the Society's letter and otherwise in conformity with the requirements of the Rules and is eligible in my opinion for record of "ELECT. LIGHT".

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

Total Capacity of Generators 690 Kilowatts.

The amount of Fee ... £ 48:15:—

Travelling Expenses (if any) £ —:—:—

When applied for,

7. 5. 1928

When received,

4. 6. 1928

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUES. 22 MAY 1928

Assigned

Elec. Light



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