

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office..... 28 SEP 1927

Date of writing Report 12.9.1927 When handed in at Local Office 27.9.1927 Port of GLASGOW.

No. in Survey held at GREENOCK Date, First Survey 12.5.27 Last Survey 9.9.27 19  
Reg. Book. (Number of Visits 15)

42256 on the M.V. PACIFIC RELIANCE. Tons { Gross 677  
Net

Built at GLASGOW. By whom built THE BLYTHWOODS S. BCO Yard No. 14 When built 1927

Owners MESSRS FURNESS WITBY & CO. LTD Port belonging to LONDON.

Electric Light Installation fitted by MESSRS THE SUNDERLAND FORGE & CO Contract No. 14 When fitted 1927

System of Distribution Double Wire ✓

Pressure of supply for Lighting 220 ✓ volts, Heating 220 ✓ volts, Power 220 ✓ volts.

Direct or Alternating Current, Lighting Direct Current ✓ Power Direct Current ✓

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 ✓

Position of Generators In Engine Room ✓, are the lubricating arrangements of the generators as per Rule yes ✓

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 yes ✓, are the generators protected from mechanical injury and damage from water, steam or oil yes ✓

and 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 In Engine Room ✓ Starboard Side ✓

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 yes ✓, are they constructed wholly of durable, non-ignitable 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 insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework yes ✓, and is the frame effectually 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  
Each Generator Triple Pole overload Reversal Current circuit Breaker 3rd pole acts as equaliser. Each circuit either Double Pole switches & fuses or D.P.C.B. of Id

Instruments on main switchboard 4 ammeters 3 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 Lamp Switch & Fuse.

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 ✓



W284-0029(112)

**Cables:** Single, twin, concentric, or multicore Single are the cables insulated and protected as per Tables IV or V of the Rules yes  
**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 4.5 volts Ely 9000th power  
**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 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 L.B.A+B cables in 2nd Deck covered with shear metal, LCA+B in ER = Fide & LCB in Accommodation  
 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 yes  
**Joints in Cables,** state if any, and how made, insulated, and protected no joints  
**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 & Fibre  
**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 No Emergency Supply  
**Navigation Lamps,** are these separately wired yes, controlled by separate switches 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  
**Secondary Batteries,** are they constructed and fitted as per Rule —  
**Fittings,** are all fittings on weather decks, in stokeholds 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, laced 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, starters and controllers constructed and fitted as per Rule —  
**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				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	165	220	750	300/515	Diesel Oil Engine	Diesel Oil	over 150° F.
AUXILIARY	1	85	220	386	300	Atlas Island Diesel Engine	Diesel Oil	filled May 1932
EMERGENCY								
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	0.6	61	0.093	750	320	Varn Camb.	LCA+B
	EQUALISER CONNECTIONS	1	0.6	61	0.093		160	"	"
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM								
	BOILER ROOM								
	ACCOMMODATION								
	Forward Winches	2	0.4	61	0.093	400	230	Varn Camb	LCA+B
	Aft Winches	4	0.4	61	0.093	400		"	"
	R.M. Lts Fore Cont. Ho.	4	0.75	19	0.72	80		Rubber	"
	Foremast	4	"	19	0.72	5		"	"
	E-Casing Pt	2	"	19	0.72	2.5		"	"
	Starb	2	"	19	0.72	2.5		"	"
	Main Mast	2	"	19	0.72	5		"	"
	Heaters	2	0.4	61	0.093	250		Varn Camb	"
	WIRELESS	2	0.045	7	0.029	18.0		Rubber	LCB
	SEARCHLIGHT								
	MASTHEAD LIGHT								
	SIDE LIGHTS	2	0.008	3	0.029	0.5	16	Rubber	LCB
	COMPASS LIGHTS	2	"	3	0.029	0.5	6	"	"
	POOP LIGHTS	2							
	CARGO LIGHTS	2	0.003	3	0.036		70	"	"
	ARC LAMPS								
	HEATERS	2	0.002	3	0.029	4.5	15	"	"

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	0.15	37	0.072	190	190	Rubber	LCA+B
	MAIN BILGE LINE PUMPS	2	0.01	7	0.044	30	110	"	"
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	Galley Blower	1	0.003	3	0.036	3.2	15	"	"
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS	2	0.1	19	0.083	102	120	Rubber	LCA+B
	CIRC. FRESH WATER PUMPS								
	Dist. Keel San	1	0.003	3	0.036	22	20	"	LCB
	AIR COMPRESSOR	1	0.007	7	0.036	16	96	Rubber	LCA+B
	FRESH WATER PUMP	2	0.0225	7	0.064	43	48	"	"
	ENGINE TURNING GEAR								
	Warping Wheel	1	0.2	37	0.083	120	35	"	"
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS	3	0.0225	7	0.064	42	72	Rubber	LCA+B
	OIL FUEL TRANSFER PUMP	2	0.01	7	0.044	2.5	200	"	"
	WINDLASS	1	0.2	37	0.083	148	10	"	"
	WINCHES, FORWARD	6	0.2	37	0.083	152	15	"	"
	WINCHES, AFT	6	0.2	37	0.083	152	15	"	"
	STEELING GEAR								
	(a) MOTOR GENERATOR	2	0.06	19	0.064	72	440	"	"
	(b) MAIN MOTOR								
	WORKSHOP MOTOR	1	0.01	7	0.044	21.5	180	"	"
	VENTILATING FANS								
	Boiler Fans	4	0.0225	7	0.064	40	260	Rubber	LCA+B
	Purified Fuel Pump	1	0.007	7	0.036	13.6	180	"	"
	Centrifuge Pumps	3	0.007	7	0.036	10.8	185	"	"
	Cargo Lifting M/c's	2	0.25	37	0.093	190	56	"	"
	Cargo Brine Pump	2	0.0225	7	0.064	44	50	"	"
	Rigging Crane	1	0.01	7	0.044	27.5	70	"	"
	Domestic CO2 M/c	1	0.0225	7	0.064	10.5	50	"	"
	Brine Pump	1	0.007	7	0.036	13.7	60	"	"

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 Sunderland Forge & Engineering Co Ltd. Electrical Engineers. Date 21/9/27  
 per E.B.

COMPASSES.

Distance between electric generators or motors and standard compass 130 feet

Distance between electric generators or motors and steering compass 120 feet

The nearest cables to the compasses are as follows:—

A cable carrying 446 Ampères 6 feet from standard compass 3 feet from steering compass.

A cable carrying 2 Ampères 2 feet from standard compass 2 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 any course in the case of the standard compass, and Nil degrees on any course in the case of the steering compass.

GLASGOW BUILDING CO. LTD.

Builder's Signature Date 23/9/1927

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 on board under special survey. Tested under full working conditions and found satisfactory. The workmanship was found to be good and sound.

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

14/10/27

Total Capacity of Generators 195 Kilowatts.

The amount of Fee ... £ 43.14.6. When applied for, 12/9/27

Travelling Expenses (if any) £ 1.10.0. When received, 15/9/27

J. Rankin  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW 27 SEP 1927

Assigned Elec Light

27/9/27

Im. 1. 26. - Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

