

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... -5 JUN 1935

Date of writing Report 27-5-1935 When handed in at Local Office 1-6-1935 Port of Glasgow.

No. in Survey held at Ardrossan. Date, First Survey 16-5-35 Last Survey 24-5-1935  
Reg. Book. (Number of Visits... 3)

90797 on the T.S.M.V. "PACIFIC COAST" Tons { Gross 1210  
Net 664

Built at Ardrossan By whom built Ardrossan Dockyard Ltd Yard No. 357 When built 1935

Owners Coast Lines Ltd Port belonging to Liverpool

Electric Light Installation fitted by Campbell & Ishwood Ltd Contract No. 357 When fitted 1935

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two wire

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 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 Main Engine Room, bottom platform. 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 — 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 Room near generators

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 — and —

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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes

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

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 Triple pole circuit

breakers (one pole equalizer) fitted with overload excess current trips, for each generator. Triple pole switch and double pole fuses for each outgoing circuit.

Instruments on main switchboard 3 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

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



**Cables:** Single, twin, concentric, or multicore *single - twin.* 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 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 *—*

**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 *Main cables H.R. braided in Galvanized tubing  
Machinery spaces H.R. in tubing or L.C.A.B. clipped. Accommodation H.R. braided clipped.*

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 *—*

**Joints in Cables,** state if any, and how made, insulated, and protected *None.*

**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 *Metallic sheathing & bonding  
of cables bonded and coated by clips or bonding glands. Portable fittings, heating &  
cooling apparatus earthed as per Rule.* 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 *—*

**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.*

**Secondary Batteries,** are they constructed and fitted as per Rule *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 *Yes - in beam decks,  
protected by strong watertight fittings - "Wigan" type.*

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 or Vertical*, 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 *Yes*, 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 *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 *—*



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PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3	2 at 60	220	273	750	Diesel Engine	Diesel Oil	above 150°F
AUXILIARY ...		1 at 45	220	205	750	do	do	do
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATORS... 60 KW.	1	.40640	61	.093	288	✓	80	V. I. R.	L. C. A + B	
EQUALISER CONNECTIONS	1	.14780	37	.072	152	✓	40	V. I. R.	L. C. A + B	
MAIN AUXILIARY GENERATOR... 45 KW.	1	.24650	37	.093	214	✓	50	V. I. R.	L. C. A + B.	
EMERGENCY GENERATOR										
ROTARY TRANSFORMER } MOTOR GENERATOR...										
ENGINE ROOM...	1	.00299	3	.036	4	12	✓	10	V. I. R.	L. C. A B.
BOILER ROOM...										
AUXILIARY SWITCHBOARDS										
ENG. ROOM. SECTION BOARD	1	.49850	61	.103	328	332	✓	30	V. I. R.	L. C. A B.
LIGHTING SECTION BOARD	1	.02214	7	.064	34	46	✓	120	V. I. R.	L. C. A B
ACCOMMODATION POOP...	1	.00299	3	.036	11	12	✓	20	V. I. R.	H. R.
HOLDS + CARGO	1	.00299	3	.036	8	12	✓	10	V. I. R.	H. R. in Tubing
NAVIGATION	1	.00299	3	.036	3	12	✓	300	V. I. R.	H. R. in Tubing
SALOON DECK	1	.00455	7	.029	14	18.2	✓	200	V. I. R.	H. R. in Tubing
BRIDGE DECK	1	.00455	7	.029	8	18.2	✓	60	V. I. R.	H. R.
WIRELESS	1	.00299	3	.036	6	12	✓	100	V. I. R.	H. R.
SEARCHLIGHT										
MASTHEAD LIGHT	1	.00299	3	.036	18	12	✓	300	V. I. R.	H. R. in Tubing
SIDE LIGHTS	1	.00299	3	.036	18	12	✓	60	V. I. R.	H. R.
COMPASS LIGHTS	1	.00299	3	.036	10	12	✓	40	V. I. R.	H. R.
POOP LIGHTS										
CARGO LIGHTS	1	.00299	3	.036	18	12	✓	300	V. I. R.	H. R. in Tubing
ARC LAMPS	1	.00455	7	.029	16	18.2	✓	30	V. I. R.	H. R.
HEATERS... SALOON CAPTAIN	1	.00455	7	.029	13	18.2	✓	80	V. I. R.	H. R.
	1	.00299	3	.036	5	12	✓	100	V. I. R.	H. R.

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.				
BALLAST PUMP											
MAIN BILGE LINE PUMPS	1	1	.00701	7	.036	22	24	✓	12	V. I. R.	H. R. in Tubing
GENERAL SERVICE PUMP	1	1	.00701	7	.036	22	24	✓	12	V. I. R.	H. R. in Tubing
EMERGENCY BILGE PUMP											
SANITARY PUMP											
CIRC. SEA WATER PUMPS	1	1	.00701	7	.036	22	24	✓	12	V. I. R.	H. R. in Tubing
CIRC. FRESH WATER PUMPS...											
AIR COMPRESSOR	2	1	.0600	19	.064	77	83	✓	12	V. I. R.	do
FRESH WATER PUMP	1	1	.00299	3	.036	11.3	12.0	✓	12	V. I. R.	do
OIL HEATER											
ENGINE TURNING GEAR...	1	1	.01046	7	.052	34	37	✓	30	V. I. R.	do
OIL PURIFIERS											
ENGINE REVERSING GEAR	2	1	.00299	3	.036	6	12.0	✓	40	V. I. R.	do
LUBRICATING OIL PUMPS	2	1	.01046	7	.052	30	37	✓	24	V. I. R.	do
OIL FUEL TRANSFER PUMP	1	1	.00299	3	.036	4.4	12.0	✓	20	V. I. R.	do
WINDLASS	1	1	.10099	19	.083	132	142	✓	40	V. I. R.	do
WINCHES, FORWARD	2	1	.10099	19	.083	122	124	✓	40	V. I. R.	do
" MIDSHIP	4	1	.10099	19	.083	122	124	✓	80	V. I. R.	do
WINCHES, AFT	1	1	.07592	19	.072	88	101	✓	150	V. I. R.	do
STEERING GEAR—											
(a) MOTOR GENERATOR...											
(b) MAIN MOTOR	1	1	.01046	7	.044	30	31	✓	150	V. I. R.	H. R.
WORKSHOP MOTOR											
VENTILATING FANS	1	1	.07592	19	.072	82	92	✓	80	V. I. R.	H. R.
MIDSHIP WINCHES D.B. MAINS	1	1	.49850	61	.103	4490	534	✓	300	V. I. R.	H. R. in Tubing
FORWARD WINCHES D.B.	"	1	.40640	61	.093	360	452	✓	450	V. I. R.	H. R. in Tubing
ENGINE ROOM AUX. D.B. 1	"	1	.0600	19	.064	75	83	✓	110	V. I. R.	L. C. A B
" " D.B. 2	"	1	.0600	19	.064	77	83	✓	145	V. I. R.	L. C. A B
" " D.B. 3	"	1	.19640	37	.083	170	184	✓	270	V. I. R.	L. C. A B
SALOON POWER D.B.	"	1	.19640	37	.083	170	184	✓	200	V. I. R.	H. R. in Tubing

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.

CAMPBELL & ISHERWOOD, LTD.

Electrical Engineers.

Date 28/5/35.

COMPASSES.

Distance between electric generators or motors and standard compass 150 feet

Distance between electric generators or motors and steering compass 175 feet

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères led into feet from standard compass led into feet from steering compass.

A cable carrying 3 Ampères 6 feet from standard compass 10 feet from steering compass.

A cable carrying 6 Ampères 6 feet from standard compass 10 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.

John C. Colman Builder's Signature.

Date 31st May

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, etc.) The electrical equipment of this

vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found to be good and sound.

J.C. Colman 31/5/35.

Noted J.C. Colman 6/6/35.

Total Capacity of Generators 165 Kilowatts.

The amount of Fee ... £ 34: 15: 0 When applied for, 4 JUN 1935

Travelling Expenses (if any) £ : 13/6 When received, 19.6.35

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 4 JUN 1935

Assigned SEE ACCOMPANYING MACHINERY REPORT.

1m.9.00.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minutes.)



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