

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

13 MAR 1929

Date of writing Report 19 When handed in at Local Office 31. 3. 1929 Port of GLASGOW.

No. in Survey held at GLASGOW. Date, First Survey 19. 4. 28 Last Survey 6. 3. 1929  
Reg. Book. 92560 on the T.S.S. VICEROY OF INDIA. (Number of Vols. 50)Built at LINTHOUSE By whom built MESSRS A. STEPHENSON & SONS LTD. Yard No. 519 Tons { Gross 19648  
Net 15069  
When built 1929.

Owners PENINSULAR &amp; ORIENT. ST. NAVY CO. Port belonging to LONDON.

Electric Installation fitted by MESSRS GILBERT. AUSTIN LTD Contract No. 519 When fitted 1929.

## System of Distribution **CONSTANT CURRENT SYSTEM.**

Pressure of supply for Lighting ☒ volts, Heating ☒ volts, Power **250 AMPS.**Direct or Alternating Current, ☒ Power **CONSTANT 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 ☒Generators, do they comply with the requirements regarding overload ☒ are they compounded wound ☒are they over compounded 5 per cent. ☒ if not compound wound state distance between each generator ☒Where more than one generator is fitted are they arranged to run in parallel ☒ is an adjustable regulating resistance fitted in series with each shunt field ☒Are all terminals accessible and clearly marked **YES.** are they so spaced or shielded that they cannot be accidentally earthed.or short circuited ☒ Are the lubricating arrangements of the generators as per Rule **YES.**Position of **MOTOR GENERATORS.** **PORT FLAG. MAIN ENGINE ROOM**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 andtheir respective generators in metallic contact **YES.****Switch Boards, where placed ALONG SIDE MAIN SWITCH BOARD.**

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 unprotectedwoodwork 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 ofpermanently high insulation resistance **YES.** if semi-insulating material is used, are all conducting parts connected to one poleinsulated from the slab with mica or micanite and the slab similarly insulated from its framework ☒ and is theframe effectively earthed ☒ Are the following fittings as per Rule, viz.:— spacing or shielding of live parts☒ accessibility of all parts ☒ absence of fuses on back of board ☒ proportion of omnibusbars **YES** individual fuses to voltmeter, pilot or earth lamp ☒ connections of switches ☒

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

**5 MAIN ROTARY SWITCHES ONE ON EACH CIRCUIT. SO DESIGNED THAT****WHEN THE CIRCUITS ARE PUT INTO USE THE CONTINUITY IS MAINTAINED**

Instruments on main switchboard ammeters 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

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 ☒



**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 ✓

**Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load ✓

**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 ✓

**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 SHEET IRON TRAYS. LEAD COVERED & ARMoured.*

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 ✓

**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 Positions**, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed ✓ state the material of which the bushes are made ✓

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas *No EARTH CONNECTIONS.*

are their connections made as per Rule

**Alternative Lighting**, are the groups of lights in the propelling machinery space arranged as per Rule

**Emergency Supply**, state position and method of control of the emergency supply and how the generator is driven ✓

**Navigation Lamps**, are these separately wired ✓, controlled by separate switch and separate fuses ✓

are the fuses double pole ✓, are the switches and fuses grouped in a position accessible only to the officers on watch ✓

has each navigation lamp an automatic indicator as per Rule ✓, are adequate screens provided for the use of oil and electric side lights

are separate oil lanterns provided for the most head lights and side lights

**Fittings**, are all fittings on weather decks, in storerooms and engine rooms and wherever exposed to drip or condensed moisture, watertight ✓

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 ✓

**Are 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 any inflammable material *YES.*

are they protected from mechanical injury and damage from water, steam, or oil *YES.*, are their axis of rotation face 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 *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 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				DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...								
AUXILIARY ...								
EMERGENCY ...								
MOTOR GENERATOR 3	150	0/600	250	500	230 H.P. MOTOR	805 AMPS	890 VOLTS.	
ROTARY TRANSFORMER								

## LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors. PER PAIR	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...								
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM								
	BOILER ROOM								
	ARRANGEMENT OF CIRCUITS.								
	FORWARD DECK.	1	.30	37	.103	250	1878.	A. SPECIAL TYPE OF CABLE IS USED IN THIS CONSTANT CURRENT SYSTEM. BRING OF VARNISHED CAMBRIC INSULATION. LEAD COVERED & RUBBER ON TOP OF THE LEAD. AND FINALLY ARMORED & BRAIDED	
	ENGINE RM STAR	1	.30	37	.103	250	344		
	FORCED DRAUGHT FANS	1	.30	37	.103	250	864		
	ENGINE RM PORT.	1	.30	37	.103	250	280		
	AFT. DECK.	1.	.30	37	.103.	250.	1227.		
	WIRELESS								
	SEARCHLIGHT								
	MASTHEAD LIGHT...								
	SIDE LIGHTS								
	COMPASS LIGHTS								
	ROOF LIGHTS								
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

## MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP								
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP								
	ENGINE TURNING GEAR								
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP								
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT								
	STEERING GEAR								
	WORKSHOP MOTOR								
	VENTILATING FANS								
	MOTORS ON EACH CIRCUIT.								
	FORWARD CIRCUIT.				WINDLASS MOTORS		2.	NO OFF	H.P. of EACH MOTOR.
					WINCHES.		2. 5 TON		100.
							6. 3 "		54.
							4. 2 "		36.
									26.
	ENGINE RM STAR.				REFRIGERATING MOTOR.		1		115
					BILGE PUMP MOTOR.		1		35
	ENGINE RM PORT.				REFRIGERATING MOTOR		1		115
					BALLAST PUMP.		1		35.
	FORCED DRAUGHT FANS				BOILER ROOM.		6.		24
	AFT. DECK.				CAPSTAINS.		2.		54.
					WINCHES.		2. 5 TON		54.
							2. 3 "		36.
							6. 2 "		26.



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.

*Gilbert Austin Ltd* *Gilbert Austin Director* Electrical Engineers.

Date

### COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass 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

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

The maximum deviation due to electric currents was found to be degrees on course in the case of the standard

compass and degrees on course in the case of the steering compass.

FOR ALEXANDER STEPHEN & SONS, LIMITED.

*A. M. Stephen.*

Director

Builder's Signature.

Date

11/3/29.

Is this installation a duplicate of a previous case If so, state name of vessel

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

The constant current installation as fitted by Messrs Gilbert Austin Ltd was installed under special survey. Tested under full working conditions and found satisfactory. The anchor tests were carried out; each motor working independently & also with one motor heaving in both anchors together with satisfactory results.

Total Capacity of Generators Kilowatts

The amount of Fee £

When applied for,

19

Travelling expenses (if any) £

When received,

19

*J. S. Rankin.*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW

12 MAR 1929

TUE. 9 APR 1929

Assigned See accompanying report.