

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JAN 12 1938

Received at London Office

Date of writing Report 18. 12. 1937, when handed in at Local Office 6: 1: 38 Port of Glasgow.

No. in Survey held at Port Glasgow. Date, First Survey 30: 11: 37 Last Survey 27: 12: 1937

Req. Book. 38763 on the SS. "JALAKRISHNA" (Number of Visits.....6.....)

Tons { Gross 4991  
Net 3075

Built at Port Glasgow. By whom built Lithgows Ltd Yard No. 904 When built 1937

Owners Scindia S. N. Co. Ltd. Port belonging to Bombay

Electric Light Installation fitted by Campbell & Isherwood Contract No. 904 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk No.

### System of Distribution

Two wire ✓

Pressure of supply for Lighting 110 ✓ volts, Heating - volts, Power 110 ✓ 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 temperature rise 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 no ✓, is an adjustable regulating resistance fitted in series with each shunt field

yes ✓ Have certificates of test results for machines under 100 kw. been submitted and approved

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing -

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 in 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 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 near to 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 ✓

is it of an approved type 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 SINDANYO ✓, is the non-hygroscopic insulating material of an approved

type 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 ✓, temperature rise of

omnibus bars yes ✓, individual fuses to voltmeter, pilot or earth lamp yes ✓, are moving parts of switches alive in the

"off" position no ✓, are all screws and nuts securing connections effectively locked yes ✓, are any fuses fitted on the live side of

switches no ✓ Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

D.P. Switch and fuses for each generator. S.P. change-over switch and D.P. fuses for each outgoing circuit. ✓

Are turbine driven generators fitted with emergency trip switch as per rule - Are cupboards or compartments containing switchboards composed of

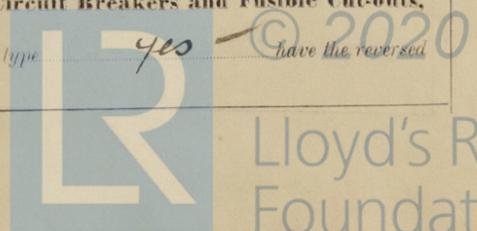
fire-resisting material or lined with approved material - Instruments on main switchboard 2 ✓ ammeters 1 ✓

voltmeters - synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

- 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 ✓, are the fusible cutouts of an approved type yes ✓, have the reversed



current protection devices been tested under working conditions  **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, V, X or XI of the Rules yes ✓

If the cables are insulated otherwise than as per Rule, are they of an approved type  **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 4.3 volts ✓ **Cable Sockets,** are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets yes ✓ **Paper Insulated and Varnished Cambric Insulated Cables,**

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound  or waterproof insulating tape  **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 ✓ Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit yes ✓

**Support and Protection of Cables,** state how the cables are supported and protected main cables L.C.A.B. clipped machinery spaces L.C.A.B. clipped. Accommodation L.C. clipped to steel or woodwork

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,** 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 lead covering and armouring bonded and earthed by means of clips, or bonding glands.

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

**Fittings,** are all fittings on weather decks, in stakeholds 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

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

are all fittings suitably ventilated yes ✓, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials yes ✓

**Heating and Cooking Appliances,** are they constructed and fitted as per Rule , are air heaters constructed and fitted as per Rule

**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

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing  **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

are all fuses of the fitted cartridge type  are they of an approved type

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office

**Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule yes ✓

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	12.5	110	114	400	steam engines.		
AUXILIARY								
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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.				
MAIN GENERATOR	1	1	19	.083	114	118	15	RUBBER.	H.R. in Conduit	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER MOTOR GENERATOR										
ENGINE ROOM	1	.007	7	.036	18	24	6	"	L.C.A.B.	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
ACCOMMODATION										
ENGINE D.B.	1	.0045	7	.029	14	18.2	80	"	"	
FO'CS'L. D.B.	1	.0045	7	.029	6	18.2	150	"	"	
MIDSHIP D.B.	1	.0225	7	.064	40	46	400	"	"	
NAVIGATION D.B.	1	.003	3	.036	375	12	500	"	L.C.A.B. or L.C.	
WIRELESS	1	.007	7	.036	15	24	500	"	"	
SEARCHLIGHT										
MASTHEAD LIGHT	1	.002	3	.029	36	7.8	500	"	"	
SIDE LIGHTS	1	.002	3	.029	36	7.8	50	"	L.C.	
COMPASS LIGHTS	1	.002	3	.029	20	7.8	40	"	"	
POOP LIGHTS	1	.0045	7	.029	11	18.2	400	"	L.C.A.B.	
CARGO LIGHTS	1	.0045	7	.029	14	18.2	80	"	"	
ARC LAMPS										
HEATERS										

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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.				
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—											
(a) MOTOR GENERATOR											
(b) MAIN MOTOR											
WORKSHOP MOTOR	1	1	.0045	7	.029	11	18.2	60	Rubber	L.C.A.B.	
VENTILATING FANS											

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

CAMPBELL  
*W. S. Campbell*

Electrical Engineers.

Date

*20/12/37*

COMPASSES.

Distance between electric generators or motors and standard compass *180 feet.*

Distance between electric generators or motors and steering compass *170 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying *.36* Ampères *led into* feet from standard compass *10* feet from steering compass.

A cable carrying *.36* Ampères *10* feet from standard compass *led into* feet from steering compass.

A cable carrying *3.75* Ampères *10* feet from standard compass *6* 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.

LITHGOWS, LIMITED.

*John M. Fullerton* Secretary

Builder's Signature.

Date

*22/12/37*

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *S.S. "JALAGANGA"*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The material and workmanship are good.*

*W.S.C.*

*Noted*

*W.S. 12/1/38*

Total Capacity of Generators *25* Kilowatts.

The amount of Fee ... £ *20* : — : *archd.*

Travelling Expenses (if any) £ — : *5/6* : *27/11 1937*  
*gmr 12/1*

*R. S. Hutchison*

Surveyor to Lloyd's Register of Shipping.

*CD*

Committee's Minute **GLASGOW 11 JAN 1938**

Assigned **SEE ACCOMPANYING MACHINERY REPORT**

7509.38.—Transfer.  
The Surveyors are requested not to write on or below the space for Committee's Minute.



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