

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 SEP 1948

Received at London Office

Date of writing Report 31st Aug. 1948 When handed in at Local Office 31st Aug. 1948 Port of HALIFAX, N. S.  
 No. in Survey held at Halifax, N. S. Date, First Survey 2nd July, Last Survey 14th July, 1948.  
 Reg. Book. 32947 on the Steel Single Screw Steamer "SEA KING" Tons { Gross 7210  
 Net 4381  
 Built at Hamilton, Ohio, By whom built Bethlehem-Fairfield Yard No.            When built 1944  
 Owners Scindia Steam Navigation Co., Ltd. Shipyd. Inc.            Port belonging to Bombay,  
 Electric Light Installation fitted by Plainville Electrical Product Co., Plainville, Connecticut. Contract No.            When fitted 1944  
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two wire insulated.  
 Pressure of supply for Lighting 120 volts, Heating -- volts, Power 120 volts.  
 Direct or Alternating Current, Lighting D.C. Power D.C.  
 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  
 Built to American Standard  
 Generators, do they comply with the requirements regarding temperature rise 40° C temp. rise are they compound wound Yes  
 are they over compounded 5 per cent. level compounded, 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 Have certificates of test results for machines under 100 kw. been submitted and approved No (Originally)  
(ABS approved) Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None  
 Adequate mechanical clamps  
 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 On generator flat, in Engine Room on stbd. side aft, 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 N/A 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 At aft end of generator flat, adjacent 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 N/A  
 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 N/A and --, are they constructed wholly of durable, non-ignitable non-absorbent materials Yes (Ebony Asbestos) 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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework N/A, is the non-hygroscopic insulating material of an approved type --, 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 on back of board temperature rise of omnibus bars --, 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 Generators - D.P. circuit breaker with overload and reverse current trips; T.P. isolating switch (including equalizer.) Outgoing circuits - D.P. switch and D.P. cartridge fuses.  
 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 N/A Instruments on main switchboard 3 ammeters 3 voltmeters No synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection Yes 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, AIEE Standard do these comply with the requirements of the Rules Standard are the fusible cutouts of an approved type Standard have the reversed



current protection devices been tested under working conditions **Yes** Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule **Yes** **AT&E standard**

Cables: Single, twin, concentric, or multicore **Single** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **standard**

If the cables are insulated otherwise than as per Rule, are they of an approved type **Yes** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **Less than 6%** Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets **No provided with adequate mechanical clamps** 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 **N/A**, 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 **Supported clear of bulkheads in steel clips.**

If cables are run in wood casings, are the casings and caps secured by screws **N/A**, 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 **AT&E standard**

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements **N/A**

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 or plastic compound.**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **---**

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 **None**

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 **N/A**

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 **No**

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **No**

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 **None**, 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 **--** (Non-essential service only) **Yes**, are the coils self-contained and readily removable for replacement **Yes**, are their working parts readily accessible **AT&E standard**

are the brushes, brush holders, terminals and lubricating arrangements as per Rule **---**, 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 **N/A**

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 **None** Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule **AT&E standard**

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule **N/A** 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 **N/A** are all fuses of the filled 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.**

13-5829

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amperes.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	3	20	120	167	400	Single cyl. vertical steam engine	--	--	
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.	In Circuit.	Rule.				
MAIN GENERATOR	1	0.1964	37	0.082	167	182	40	Rubber	L.C. & galv. steel wire braided.	
EQUALISER CONNECTIONS	1	0.0327	7	0.077		55	20	"	"	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER (MOTOR GENERATOR)										
ENGINE ROOM "L 1"	1	0.0521	7	0.097	60	75	20	"	"	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
Cargo Lights (ford) "L 2"	1	0.0521	7	0.097	30	75	700	"	"	
" " (Aft) "L 5"	1	0.0521	7	0.097	30	75	320	"	"	
Steering Compt. (&C) "L 6"	1	0.0521	7	0.097	35	75	480	"	"	
Wheelhouse (&C) "L 7"	1	0.0206	7	0.061	30	43	590	"	"	
Navigation Lights "L 8"	1	0.0206	7	0.061	10	43	590	"	"	
ACCOMMODATION										
Midship "L 3"	1	0.0828	19	0.074	60	102	500	"	"	
" " "L 4"	1	0.0828	19	0.074	60	102	540	"	"	
Boat Deck "L 7"	1	0.0828	19	0.074	60	102	600	"	"	
Bridge Deck "L 9"	1	0.0828	19	0.074	60	102	200	"	"	
WIRELESS "P 7"	1	0.0206	7	0.061	35	43	600	"	"	
SEARCHLIGHT "L 10"	1	0.0828	19	0.074	10	102	650	"	"	
MASTHEAD LIGHT										
SIDE LIGHTS										
COMPASS LIGHTS										
POOP LIGHTS										
CARGO LIGHTS										
Battery Charging	1	0.0206	7	0.061	30	43	4	"	"	
ARC LAMP Salmify	1	0.0032	7	0.024	1	10	40	"	"	
HEATER-INDICATOR	1	0.0032	7	0.024	1	10	40	"	"	

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										
Refrig. COMPRESSOR "P.B"	1	1	0.0657	19	0.066	59	87	600	Rubber	L.C. & Galv. steel wire braided.
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										
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.

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.

Builder's Signature.

Date

Is this installation a duplicate of a previous case Yes If so, state name of vessel (American Type EC2 -S -Cl- vessels).

General Remarks (State quality of workmanship, opinions as to class, &c. The Electrical Installation of this vessel, originally fitted in 1944 to the requirements of the American Bureau of Shipping and under survey of the Surveyors to that Society, has now been examined as required by the Rules for Periodical Survey, the insulation resistance has been tested and found or brought up to not less than 100,000 ohms, and the installation has been tried out under working conditions and found efficient.

In result of the present examination, the Electrical Installation of this vessel is, in my opinion, such as could be accepted for Classification with this Society.

Notes see 22/10/48

Total Capacity of Generators 60 Kilowatts.

The amount of Fee See Rpt. 9

When applied for, 19

Travelling Expenses (if any) £

When received, 19

Geo Peattie Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 29 OCT 1948

Assigned

See minute on je machy rpt.

