

Rpt. 13.

No. 96890

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

NOV 19 1938

Received at London Office

Date of writing Report 10 When handed in at Local Office 18/11/38 Port of Newcastle-on-Tyne

No. in Survey held at Newcastle Date, First Survey 25 May Last Survey 7 Nov 1938
 Reg. Book. Supt. (Number of Visits 18)

71009 on the S.S. "AMRA" Tons { Gross 8314 Net 3993

Built at Newcastle (Walker) By whom built Swan Hunter & W.R. 60 Ltd Yard No. 1070 When built 1928

Owners British India Steam Navigation Co Ltd Port belonging to London

Electric Light Installation fitted by Swan Hunter & W.R. 60 Ltd Contract No. 1670 When fitted 1928

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution

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 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 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 Yes.

Have certificates for generators under 100 kw. been inspected by the Surveyors during manufacture and testing Yes.

Have certificates for generators under 100 kw. been supplied and approved 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. Are the lubricating arrangements of the generators as per Rule Yes.

Position of Generators Engine room starboard side, 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 Engine room starboard side aft.

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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes, 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 Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Dipole C.B. for each generator. D.P.C.B.'s or D.P.B. fuses for each outgoing circuit

Are turbine driven generators fitted with emergency trip switch as per rule Yes. Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Instruments on main switchboard 3 ammeters. 3.

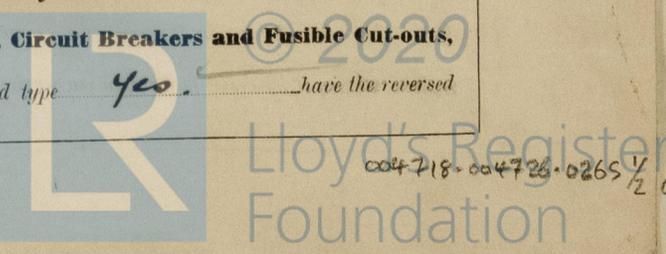
voltmeters synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection Yes. Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

E lamps Coupled to E through switches of fuses. 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

Notes of diagrams, copies of certificates, Generator Test Sheets, etc.

ENCLOSURE

ENCLOSURE No 489



004718-004726-0265 1/2 026

current protection devices been tested under working conditions Yes are all fuses labelled as per rule 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 are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules Yes

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 5.0 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 Cambrie Insulated Cables, If conductors are paper or varnished cambrie insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound Yes or waterproof insulating tape 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 are cables laid under machines or floorplates Yes are they adequately protected Yes LC A+B

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories laid under or run in conduit LC

Support and Protection of Cables, state how the cables are supported and protected LC in acc, LC A+B in machinery spaces

If cables are run in wood casings, are the casings and caps secured by screws Yes are the cap screws of brass Yes are the cables run in separate grooves Yes 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 Yes

Joints in Cables, state if any, and how made, insulated, and protected none made

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 Yes 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 Boat deck, G.O.B. between main switchboard & emergency generator. Diesel engine.

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 in a position accessible only to the officers on watch Yes

has each navigation lamp of automatic indicator as per rule Yes **Secondary Batteries**, are they constructed and fitted as per Rule Yes are they ventilated 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 protected by hinged cast iron covers.

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 how are the cables led Yes

where are the controlling switches situated Yes

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 Yes are air heaters constructed and fitted as per Rule Yes

Searchlight Lamps, No. of one whether fixed or portable portable are their fittings as per Rule Yes

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 Yes if not of this type, state distance of the combustible material horizontally or vertically above the motors Yes and Yes

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing Yes have certificates for all motors for essential services been supplied and approved Yes

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 Yes **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 Yes are all fuses of the filled cartridge type Yes are they of an approved type Yes

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces Yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes are they suitably stored in dry situations Yes

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	3	275	220	1250	1000	Steam Turbine		
AUXILIARY								
EMERGENCY	1	20	220	91	1000	Diesel Engine		
ROTAry TRANSFORMER								

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	2	.75	91	.103	1250	1328	120 x	VC	LC A+B
EQUALISER CONNECTIONS	1	.75	91	.103	-	664	120	VC	LC A+B
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.075	19	.072	91	98	30	V.L.R.	VC
ROTAry TRANSFORMER (MOTOR GENERATOR)									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									SEE BOOK OF DIAGRAMS.
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.18	7.8	750	VC	LC A+B
SIDE LIGHTS	1	.002	3	.029	.18	7.8	80	VC	LC A+B
COMPASS LIGHTS	1	.002	3	.029	.18	7.8	40	VC	LC A+B
PORT LIGHTS	1	.002	3	.029	.18	7.8	800	VC	LC A+B
CARGO LIGHTS									
HEATERS									See book of diagrams.

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										
VENTILATING FANS										

The Electrical Equipment is installed in accordance with the approved plans.
 All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
 The foregoing is a correct description.

For
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Electrical Engineers.

Date 16th Nov 1938

H. H. H.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 150 feet.

Minimum distance between electric generators or motors and steering compass 145 feet.

The nearest cables to the compasses are as follows:—

A cable carrying .07 Ampères on the ~~main~~ standard compass 8 feet from steering compass.

A cable carrying .07 Ampères 8 feet from standard compass on the 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 all course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

G. J. Sweedy
 DIRECTOR

Builder's Signature.

Date 17th Nov 1938

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 above instⁿ has been fitted out under special survey. The workmanship + materials used were good. The insulation resistance is good. On completion the inst was test^d under working conditions + found satisfactory. The vessel is eligible in my opinion for notation AF + ES.D.

Note: The remainder of cost will be forwarded received from Builder.

W. T. Badger
 21/11/38

Total Capacity of Generators 845 Kilowatts.

The amount of Fee ...	£ 66-2/6	When applied for.	15/11/38
Travelling Expenses (if any) £	13-4-6	When received.	19/11/38
	2 = 17 9		

W. T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 22 NOV 1938

Assigned See FE machy rpt

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



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