

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)

07009 on the

S. S. "AMRA"

Tons

Gross 8314

Net 3993

Built at

Newcastle (Walker)

By whom built

S. S. "AMRA" Ltd

Yard No. 1070

When built 1928

Owners

British India Steam Navigation Co Ltd

Port belonging to

London

Electric Light Installation fitted by

S. S. "AMRA" & W. R. & Co.

Contract No. 1670

When fitted 1928

Is the Vessel fitted for carrying Petroleum in bulk

No.

System of Distribution

Double line.

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 machines over 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

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.

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

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

—

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

omnibus bars

Yes

accessibility of all parts

Yes

absence of fuses on back of board

Yes

temperature rise of

switches

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

Triple pole C.B. for each generator. D.P.C.B. 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.

voltage

—

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

Yes.

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

Folio of diagrams, copies of certificates, Generator test sheets, etc.

ENCLOSURE

ENCLOSURE
No 489

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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 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. *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* so, are they adequately protected. *Yes* **LC A+B**

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

Support and Protection of Cables, state how the cables are supported and protected. *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, 6.0.3. 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 placed in a position accessible only to the officers on watch. *Yes*

has each navigation lamp of automatic indication 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.		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
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.075	19	.072	91	98	30	V.L.R	LC
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
COMPASS LIGHTS	1	.002	3	.029	.18	7.8	40	VC	LC
CARGO LIGHTS	1	.002	3	.029	.18	7.8	200	VC	LC
HEATERS									See book of diagrams.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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 16 Nov 1938

COMPASSES.

Minimum distance between electric generators or motors and standard compass 100 feet.

Minimum distance between electric generators or motors and steering compass 140 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. Tweedy
DIRECTOR

Builder's Signature.

Date 17 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 tested under working conditions + found satisfactory. The vessel is eligible in my opinion for notation SF + 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

Ywe. af.

52 18 0

Travelling Expenses (if any) £

13 4 6

When received.

19/11/38

W. T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See FE mach rpt

TUE 22 NOV 1938



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