

REPORT ON ELECTRICAL EQUIPMENT.

No. 95095

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report

10

When handed in at Local Office

24/5/37

Received at London Office

JUN -1 1937

No. in Survey held at

Newcastle

Reg. Book. Supp.

87515 on the

S. S.

"Ballistian"

Date, First Survey

16 Feb

Last Survey

14 May

1937

(Number of Visits... 16...)

Built at

South Shields

By whom built

J Readhead & Sons Ltd

Yard No. 508

When built 1937

Owners

Strick Line (1928)

Port belonging to

London

Electric Light Installation fitted by

Clarke Chapman & Co Ltd

Contract No. 508

When fitted 1937.

Is the Vessel fitted for carrying Petroleum in bulk

No.

System of Distribution

Double wire

Pressure of supply for Lighting

110

volts, Heating

110

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

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

Yes (2 attached herewith)

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

in way of the generators satisfactory

Yes

are they clear of all inflammable material

Yes

is the ventilation 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

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

are they constructed wholly of durable, non-ignitable non-absorbent materials

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

No

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

D.P.S + O.P. fuses on dynamo mains, S.P. COS + O.P. fuses on 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

2

volts, 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

E lamps Coupled to E through switches & fuses.

Switches, Circuit Breakers and Fusible Cut-outs,

do these comply with the requirements of the Rules

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 — 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. — 4.0 volts

any point of the installation under maximum load. Yes

area of 0.04 square inch and above provided with soldering sockets. Yes

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. —

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. Acc^d L.C. & B cable clipped up - main cables K.I.R in galvanised iron pipe. Engine room & stokehold L.C & B cable clipped up.

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. home 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. —

are their connections made as per Rule. —

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 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. —

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. —, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials. —

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 the lamp supplied 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 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.

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	2	15	110	135	720	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	15	37	.072	135	152	45	M.I.R	L.C. & B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR...									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR...									
ENGINE ROOM... }									
BOILER ROOM... }	1	.01	7	.044	20	31	30	50	L.C. & B.
AUXILIARY SWITCHBOARDS									
ACCOMMODATION Engg. ...	1	.01	7	.044	19	31	120	50	Safed stranded in galv iron pipe
" Aft. ...	1	.01	7	.044	9	31	400	50	50
Navigation ...	1	.0045	7	.029	4	18.2	350	50	50
Acc ^d Saloon ...	1	.1	19	.083	40.6	118	320	50	50
WIRELESS ...	1	.01	7	.044	13.6	31	120	50	50
SEARCHLIGHT ...	1	.06	19	.064	-	83	720	50	50
MASTHEAD LIGHT ...	1	.003	3	.036	4	12.0	560	50	50
SIDE LIGHTS ...	1	.003	3	.036	4	12.0	60	50	L.C. & B.
COMPASS LIGHTS ...	1	.003	3	.036	25	12.0	30	50	50
Deck LIGHTS ...	1	.003	3	.036	4	12.0	700	50	in galv iron pipe
CARGO LIGHTS ...	1	.0017	40	.0046	2.3	5	120	50	Cat type
ARC LAMPS ...									
HEATERS ...	1	.0045	7	.029	9	18.2	32	50	T & B.

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										
VENTILATING FANS										
Refg motor	1	1	.01	7	.044	18	31	290	K.I.R	T & B in galv iron pipe

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.

For *Clark, Chapman & Co., Ltd.*

W. Taylor Director

Electrical Engineers.

Date *10/5/37.*

COMPASSES.

Distance between electric generators or motors and standard compass *108 feet*

Distance between electric generators or motors and steering compass *102 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *.25* Ampères *6* feet from standard compass *on the* feet from steering compass.

A cable carrying *.25* Ampères *on the* feet from standard compass *6* 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 *Yes*

So he filled in after adjustment of compasses W.T.B.

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

See cert. attached herewith W.T.B.

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.

FOR JOHN READHEAD & SONS LTD

J. H. Readhead

Builder's Signature.

Date *18/5/37.*

CHAIRMAN & MANAGING DIRECTOR.

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

General Remarks (State quality of workmanship, opinions as to class, &c. *The above inst. has been*)

fitted out under special survey. The workmanship & materials are good. The insulation resistance is good. The dynamo, governor, main board, fuses, cables & fittings have been used & tested under working conditions & found satisfactory. This vessel is eligible in my opinion for notation SF, ESD.

*W.T.B.
2/6/37.*

Total Capacity of Generators *30* Kilowatts.

The amount of Fee ... £ *22 : 10 :*

When applied for,
31 MAY 1937

Travelling Expenses (if any) £ :

When received,
3.6 37 2/4/6

W.T. Badger
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 4 JUN 1937

Assigned

See Nwc. 76, 95095



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Lloyd's Register
Foundation