

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JAN 22 1941

Received at London Office.....

Date of writing Report.....19..... When handed in at Local Office.....14/1/41.....19..... Port of Newcastle-on-Tyne.

No. in Survey held at High Shields Date, First Survey 29-11-40 Last Survey 6-1- 1941  
Reg. Book. Suppl. (Number of Visits.....6.....)

87995 on the S.S. EMPIRE RAIN Tons {Gross 7290  
Net 5123

Built at High Shields By whom built J. Readhead & Sons. Ltd. Yard No. 520 When built 1940

Owners H.M. Ministry of Shipping Port belonging to South Shields.

Electrical Installation fitted by Clarke Chapman & Co. Ltd. Contract No. 520 When fitted 1940

Is vessel fitted for carrying Petroleum in bulk No Is vessel equipped with D.F. Yes E.S.D. No Gy.C. No Sub.Sig. No

Have plans been submitted and approved Yes System of Distribution Two wire Voltage of supply for Lighting 110

Heating..... Power..... Direct or Alternating Current, Lighting Direct Power..... If Alternating Current state frequency..... Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule..... Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

if not compound wound state distance between generators..... and from switchboard..... Where more than one generator is fitted are they

arranged to run in parallel No, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing..... Have certificates of

test for machines under 100 kw. been supplied Yes and the results found as per rule Yes Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators Engine room starboard side

....., is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situated

near unprotected combustible material state distance from same horizontally..... and vertically....., are the generators protected from mechanical

injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed Engine room starboard side.

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material state distance from same horizontally..... and vertically....., what insulation

material is used for the panels Ebony Sindanyo, if of synthetic insulating material is it an Approved Type Yes, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule..... Is the frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead"

side of switches Yes Description of Main Switchgear for each generator and arrangement of equaliser switches Double pole

Quick-break Knife switches and double pole fuses.

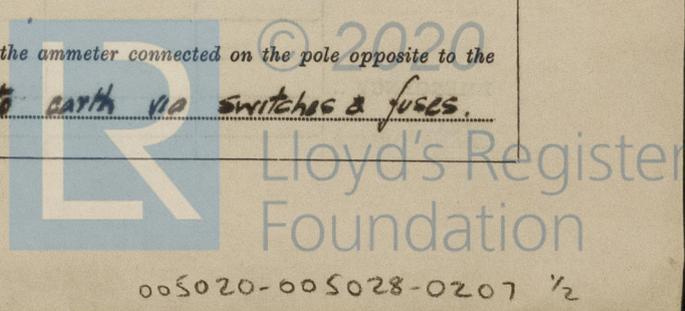
and for each outgoing circuit Single pole changeover quick-break Knife switches and

double pole fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard Two

ammeters Two voltmeters..... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection..... Earth Testing, state means provided Earth lamps coupled to earth via switches & fuses.



Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled as per Rule Yes, are the reversed current protection devices connected on the pole opposite to the equaliser connection -, have they been tested under working conditions -. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes. Cables, are they insulated and protected as per the appropriate Tables of the Rules Yes, if otherwise than as per Rule are they of an approved type Y, state maximum fall of pressure between bus bars and any point under maximum load Less than 30, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes. Are paper insulated and varnished cambric insulated cables sealed at the exposed ends - with insulating compound - or waterproof insulating tape -. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage Yes, are cables laid under machines or floorplates Yes, if so, are they adequately protected Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit Yes. State how the cables are supported and protected Main cables run in heavy gauge galvanised steel pipe in accommodation spaces, L.C. cables clipped to wood grounds or surface.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes. Refrigerated chambers, are the cables and fittings as per Rule -. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes, where unarmoured cables pass through beams, etc., are the holes effectually bushed Yes and with what material lead. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position - and method of control -. Navigation Lamps, are they separately wired Yes controlled by separate double pole switches Yes and fuses Yes. Are the switches and fuses in a position accessible only to the officers on watch Yes, is an automatic indicator fitted Yes. Secondary Batteries, are they constructed and fitted as per Rule -, are they adequately ventilated -. Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present No, if so, how are they protected - and where are the controlling switches fitted -, are all fittings suitably ventilated Yes, are all fittings and accessories constructed and installed as per Rule Yes. Searchlight Lamps, No. of -, whether fixed or portable -, are their fittings as per Rule -. Heating and Cooking, is the general construction as per Rule -, are the frames effectually earthed -, are heaters in the accommodation of the convection type -. Motors, are all motors constructed and installed as per Rule - and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil -, if situated near unprotected combustible material state minimum distance from same horizontally - and vertically -. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing -. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule -. Control Gear and Resistances, are they constructed and fitted as per Rule -. Lightning Conductors, where required are they fitted as per Rule -. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with -, are all fuses of the 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 flameproof type -. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule Yes, are they suitably stored in dry situations Yes. Insulation Tests, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory 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 1/2	110	113.5	600	Single cyl. vertical steam engines.		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands, Sq. Ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	12.5	1	19/083	113.5	118	30	V.I.R	In galvanised steel pipe
" " EQUALISER								
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS								
Saban lighting & forward Engineers and aft	1	19/060	28	83	200'	V.I.R	"	"
	1	7/052	28-10	27	100'	V.I.R	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS								
	1	7/064	13.5	46	300'	V.I.R	"	"
NAVIGATION LIGHTS	1	7/000	5.5	31	300'	V.I.R	"	"
LIGHTING AND HEATING								
Engine & boiler room	1	7/036	13.8	28	40'	V.I.R	"	"
Cargo aft	1	7/036	8.25	28	200'	V.I.R	"	"
Accommodation aft	1	7/052	10	27	400'	V.I.R	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Refrigerator machy	2	1	7/064	23.5	46	200'	V.I.R	"

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

For Clarke, Chapman & Co., Ltd.

*W. Taylor* Director

Electrical Engineers.

Date 8/1/41

COMPASSES.

Minimum distance between electric generators or motors and standard compass 150'

Minimum distance between electric generators or motors and steering compass 140'

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 150' inside feet from standard compass 150' feet from steering compass.

A cable carrying 10 Ampères 150' inside feet from standard compass 150' 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

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 every course in the case of the standard compass, and Nil degrees on every course in the case of the steering compass.

For, JOHN READHEAD & SONS, LIMITED.

*John Readhead* Builder's Signature

MANAGING DIRECTOR.

Date 14/1/41.

Is this installation a duplicate of a previous case No If so, state name of vessel

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

The electrical equipment of this vessel was installed under special survey and is in accordance with the approved plans and specifications. The workmanship and materials used are good. The running, compounding and regulation of the generator sets have been tested. The insulation resistance of each circuit measured and found satisfactory. In my opinion, the installation is suitable for a closed vessel.

Noted  
27/1/41

Total Capacity of Generators 25 Kilowatts.

The amount of Fee ... £25 : 0 :  
Travelling Expenses (if any) £ : :  
When applied for 20 JAN 1941  
When received 19.....

*H. D. Bowen*

Surveyor to Lloyd's Register of Shipping.

TUE. 28 JAN 1941

Committee's Minute

Assigned See Nav. J.C. 99127

2m.10.38.—Transfer. (MADE IN ENGLAND.)  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

