

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

APR -4 1938

Received at London Office

Date of writing Report 18th Mar, 1938 When handed in at Local Office 1-4-1938 Port of Middlesbrough
 No. in Survey held at Haverton Hill-on-Sea Date, First Survey 19th January Last Survey 17th March, 1938
 Reg. Book. Suppl. and West Hartlepool (Number of Visits 8)
39939 on the S.S. "REBECA"

Tons { Gross
Net

Built at Haverton Hill-on-Sea By whom built Furness S. B. Co. Ltd. Yard No. 277 When built 1938
 Owners H. V. Curacao'sche Scheepvaart Maats. Port belonging to Willemstad
 Electric Light Installation fitted by Furness S. B. Co. Ltd. Elec. Dept. Contract No. 277 When fitted 1938
 Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Double wire

Pressure of supply for Lighting 110 volts, Heating — 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 Only one fitted, 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, Cert. Norwich

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, 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

near generator Yes 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 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 —, 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 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. sw. + D.P. fuses on generator main; D.P. sw. + D.P. fuses on outgoing circuits

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 One ammeter One

voltmeter — 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, have the reversed

do these comply with the requirements of the Rules Yes are the fusible cutouts of an approved type Yes

current protection devices been tested under working conditions — 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 — **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *less than 5.3 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 —, 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 laid under machines or floorplates *Yes* if so, are they adequately protected *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 *Please see below*

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 *Arrangement appd. Secretary's letter of 12/7/37*

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 — 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 — *Support & Protection of Cables: — L.C.A.B. cables run in pipes with expansion joints along trunk top; L.C.A.B. cables clipped up in machinery spaces & alleyways; L.C.A.B. cables clipped up to wooden grounds in accom.*

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 officer on watch *Yes*

has each navigation lamp an automatic indicator as per Rule *Yes* **Secondary Batteries,** are they constructed and fitted as per Rule — are they ventilated as per Rule —

Fittings, are all fittings on weather decks, in storerooms 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 *Pump room fittings enclosed in steel casings with gas-tight glazed apertures in gas-tight screwed conduit from accom. alleyway to pump room companionway where are the controlling switches situated in accommodation space*

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 fitted* whether fixed or portable —, 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 *None fitted* have certificates for all motors for essential services been supplied and approved *Yes such motors fitted*

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. Yes* are all fuses of the fitted 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

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*

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	1	10	110	91	680	Single cylinder 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.	Circuit.	Rule.				
MAIN GENERATOR	1	.075	19	.072	91	97	36	V.I.R.	L.C.A.B.	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER										
ENGINE ROOM	1	.0045	7	.029	18	18.2	24	V.I.R.	L.C.A.B.	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
ACCOMMODATION										
Triadship & Navigation	1	.04	19	.052	19	64	480	V.I.R.	L.C.A.B.	
Forward Lighting	1	.04	19	.052	8	64	760	V.I.R.	L.C.A.B.	
Aft Accom. Port	1	.0225	7	.064	12	46	220	V.I.R.	L.C.A.B.	
Aft Accom. Starboard	1	.01	7	.044	16	31	140	V.I.R.	L.C.A.B.	
WIRELESS	1	.01	7	.044	15	31	220	V.I.R.	L.C.A.B.	
SEARCHLIGHT	1	.002	3	.029	36	7.8	420	V.I.R.	L.C.A.B.	
MASTHEAD LIGHT	1	.002	3	.029	36	7.8	70	V.I.R.	L.C.A.B.	
SIDE LIGHTS	1	.002	3	.029	14	7.8	40	V.I.R.	L.C.A.B.	
COMPASS LIGHTS	1	.002	3	.029	36	7.8	700	V.I.R.	L.C.A.B.	
STERN LIGHTS										
CARGO LIGHTS										
HEATERS										
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	1	1	.01	7	.044	17	31	200	V.I.R.	L.C.A.B.
WORKSHOP MOTOR	1	1	.0045	7	.029	10.5	18.2	200	V.I.R.	L.C.A.B.
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.

P.S. Glover per *W.B.*

Electrical Engineers.

Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass *188 feet*

Minimum distance between electric generators or motors and steering compass *184 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *.14* Amperes *on the* ~~foot~~ from standard compass *10* feet from steering compass.

A cable carrying *.14* Amperes *10* feet from standard compass *on the* ~~foot~~ from steering compass.

A cable carrying _____ Amperes _____ 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 *any* course in the case of the standard compass, and *nil* degrees on *any* course in the case of the steering compass.

FITNESS SURVEYING CO. LTD.

J.M. Glover

Builder's Signature.

Date

31/3/38

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, &c. *The electrical equipment of this vessel was fitted out under special survey. The materials used and the workmanship are good. On completion all equipment was operated under working conditions, the dynamo engine given was operated, the insulation resistance of all circuits and apparatus measured, the dynamo, main switchboard, distribution boards, switches, fuses, cables, motors and fittings were examined and tested and the spare gear was checked. In my opinion this equipment can be considered suitable for a classed vessel carrying petroleum in bulk.*

Noted

Huss

5.4.38

Total Capacity of Generators *10* Kilowatts.

The amount of Fee ... *£ 10* : - : *11-3-1938*

Travelling Expenses (if any) £ : : *2/5-1938*

Committee's Minute

Assigned

TUE 5 APR 1938

See Mdb. J.C. 16275

Sauterson

Surveyor to Lloyd's Register of Shipping.