

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

18 AUG 1942

Received at London Office

Date of writing Report 10 May 1942 When handed in at Local Office 19 Port of Curacao, N.W.I.

No. in Survey held at Curacao, N.W.I. Date, First Survey 7 Oct. 1940 Last Survey, 7 May 1942
 Reg. Book. 25103 on the single screw motor vessel "Bonaire" ex "Henry Klein" (Number of Visits 26)

Built at Hamburg By whom built Reihof. Schiff. Werkh. Yard No. 578 When built 1926
 Owners Government of Curacao, N.W.I. Port belonging to Willemstad.
 Electric Light Installation fitted by Siemens-Schuckert Werke Contract No. ✓ When fitted 1926
 Is the Vessel fitted for carrying Petroleum in bulk no.

Tons { Gross 3164
 Net 1857

System of Distribution D.C. power & lighting, two wire except Mastle lighting, single wire but return
 Pressure of supply for Lighting 110 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 repair and testing 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 One on each side of main engine on bottom platform., 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 Board, where placed Forward engine room bulkhead, level with top of main engine.

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 ✓, 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 normal under load, 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

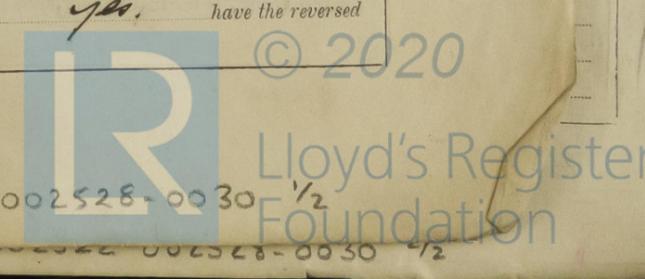
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches A circuit breaker with overload & reverse current trips on positive bar & equalizer switched in & locked on negative bar

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 yes

Instruments on main switchboard Six ammeters Four voltmeters no 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 Ohmmeters.

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



current protection devices been tested under working conditions *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 *various* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *mainly*

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 *all under 5%* 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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered *yes and armoured*

Support and Protection of Cables, state how the cables are supported and protected *galvanised clips, lead pads & channels where*

necessary, cabin lighting only.

If cables are run in wood casings, are the casings and caps secured by screws *partly*, are the cap screws of brass *yes*, are the cables run in

separate grooves *partly*. 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 *lightning, twisted, soldered & taped. Remainder, tapes.*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

both 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 pads.*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Flexible lighting earth cable 0.18" with*

0.025" wire secured to hull frame. Rotary transformer, 0.04" in wire secured to hull

frame. Remainder to earth bus bar on main board 0.16", are their connections made as per Rule *no*

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 *Emergency Diesel Generator 13K.W. 230V. on Bottom*

plateform, p.s. of E.R. Four Batteries, 6A. 24V. for 10 lights in E.R. only. Situated on p.o. of E.R. in lower deck, charged from main

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 *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 *cables and junction*

tapes in lower deck other protected by channels.

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*

yes, how are the cables led

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 *yes*, whether fixed or portable *yes*, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *yes*, are their live parts insulated from the frame or case *yes*, 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 or vertical*, 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

have machines of over 100 BHP been inspected by the Surveyors during *repair* and testing *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 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 type approved by the Home Office *yes*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes.*

PARTICULARS OF GENERATING PLANT.

Table with columns: DESCRIPTION OF GENERATOR, No. of, Kilowatts, Volts, Amperes, Revs. per Min., DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel). Rows include MAIN, AUXILIARY, EMERGENCY, ROTARY TRANSFORMER.

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

Table with columns: DESCRIPTION, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. In.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Amperes, In Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED. Rows include MAIN GENERATORS, EQUALISER CONNECTIONS, AUXILIARY GENERATOR, EMERGENCY GENERATOR, ROTARY TRANSFORMER, ENGINE ROOM, BOILER ROOM, MAIN SWITCHBOARD, WINDLASS SWITCHBOARD, ACCOMMODATION BENT DECK, PAINT, BULKHEAD, FLAT, POOP, WIRELESS, SEARCHLIGHT, MASTHEAD LIGHT, SIDE LIGHTS, COMPASS LIGHTS, POOP LIGHTS, CARGO LIGHTS, ARC LAMPS, HEATERS.

MOTOR CONDUCTORS.

Table with columns: DESCRIPTION, No. of Motors, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. In.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Amperes, In Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED. Rows include BALLAST PUMP, MAIN BILGE LINE PUMPS, GENERAL SERVICE PUMP, EMERGENCY BILGE PUMP, SANITARY PUMP, CIRC. SEA WATER PUMPS, CIRC. FRESH WATER PUMPS, AIR BLOWERS, FRESH WATER PUMP, ENGINE TURNING GEAR, ENGINE REVERSING GEAR, LUBRICATING OIL PUMPS, OIL FUEL TRANSFER PUMP, WINDLASS, WINCHES, FORWARD, WINCHES, AFT, STEERING GEAR, STEERING GEAR MOTOR, WORKSHOP MOTOR, VENTILATING FANS, Ice mach. S.S., Ice mach. P.B., Diesel pump P.S., Diesel transfer pumps, Diesel oil tanks, DIESEL MOTOR, EMERGENCY SET.

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.

The new materials now fitted conform to the above.

Electrical Engineers.

Date 10 May 1942

W. Chapman

COMPASSES.

Distance between electric generators or motors and standard compass

approx 150 feet

Distance between electric generators or motors and steering compass

do 140 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.4 Ampères 2 feet from standard compass 2 feet from steering compass.

A cable carrying 1.0 Ampères 6 feet from standard compass 4 feet from steering compass.

A cable carrying 6.0 Ampères 8 feet from standard compass 8 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 -4 degrees on S.E. and N.W. course in the case of the standard compass, and -3 degrees on N.W. by W. course in the case of the steering compass.

W. Chapman

Builder's Signature.

Date 10 May 1942.

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 has been examined throughout, necessary repairs and renewals effected, insulation resistance of generator, motor, circuits & etc tested, all tried under working conditions & found satisfactory.

The electrical equipment of this vessel is eligible, in my opinion, to be classed with the machinery & have the notation of L.M.C. with date when the machinery survey has been completed.

Total Capacity of Generators 223 Kilowatts.

The amount of Entry fee No. 117: 10

The amount of Fee ... No 58: 50

When applied for,

8/57/42

When received.

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Travelling Expenses (if any) *✓*

W. Chapman
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 16 OCT 1947

Assigned

See Cos. Rpt. 2182