

## 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. (Number of Visits 26)

23103 on the single screw motor vessel "Bonaire" ex "Henry Mann".

Tons { Gross 3164  
Net 1857

Built at Hamburg By whom built Reihov. Schiff. Werhft. 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.

System of Distribution D.C. power &amp; lighting, two wire except Haste 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

no, satisfactory insulation and approved running test only Have machines over 100 kw. been inspected by the Surveyors during manufacture 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 engines. 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 &amp; reverse current trips on positive bar &amp; equalizer switch in interlocked arrangement.

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

volumeters 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" 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 13 K.W. 230V. on Platform platform, p. 1 of E.R. Four batteries, 6A. 24V. for 10 lights in E.R. only. Situated on p. 2 of E.R. in twin 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 boxes in twin 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* 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 *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.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	105 each	230	455	325	Internal Combustion Engines	Esso Oil	None 145°F
AUXILIARY	1	13	230	57	400	Do.	Do.	Do.
EMERGENCY	1	5	115	43.5	1800	Electric Motor	Do.	Do.
ROTARY TRANSFORMER	2	10	115	87.0	1500	Do.	Do.	Do.

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	No. per Pole.	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.			
MAIN GENERATORS R.S.	1	1	0.35	multicore	not known	455	250	91.72	Rubber	Lead sheathed & armoured casing
EQUALISER CONNECTIONS	1	1	0.35	"	"			45	"	"
AUXILIARY GENERATOR	1	1	0.35	"	"	57	250	53	"	"
EMERGENCY GENERATOR	1	1	0.038	"	"	3.2		26	"	"
ROTARY TRANSFORMER	1	1	0.055	"	"	43.5		13	"	"
ENGINE ROOM	1	1	0.003	1	0.003	6		✓	"	"
BOILER ROOM	1	1	0.003	1	0.003	4		✓	"	"
MAIN SWITCHBOARD	1	1	0.27	1	0.27	400	250	✓	copper busbar on insulators	Lead sheathed & armoured casing
WIRELESS SWITCHBOARD	1	1	0.1	not known		200	115	132	Rubber	Lead sheathed & armoured casing
" " WIRELESS	1	1	0.1	"		200	115	264	"	"
ACCOMMODATION BATT. DE.	1	1	0.0093	1		20		175	"	"
PAINT. DE.	1	1	0.0093	1		15		125	"	"
BOILER DE.	1	1	0.0093	1		15		125	"	"
FLATLE	1	1	0.0093	1		10		135	"	"
POOP	1	1	0.0093	1		10		270	"	"
WIRELESS	1	1	0.0093	1		20		145	"	"
SEARCHLIGHT	1	1	0.0022	1		0.7		440	"	"
MASTHEAD LIGHT	1	1	0.0022	1		0.7		70	"	"
SIDE LIGHTS	1	1	0.003	1		0.5		55	"	extn. covered armoured casing
COMPASS LIGHTS	1	1	0.0022	1		0.7		500	"	"
POOP LIGHTS	1	1	0.003	1		0.2		various	"	Rubber cable
CARGO LIGHTS	1	1	0.0093	1		25		166	"	Lead sheathed & armoured casing
ARC LAMPS	1	1	0.0093	1		25		166	"	"
HEATERS	1	1	0.0093	1		25		166	"	"

## 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	1	1	0.042	not known		69	64	95	Rubber	Lead sheathed & armoured casing
MAIN BILGE LINE PUMPS	1	1	0.04	1		65		28	"	"
GENERAL SERVICE PUMP	1	1	0.035	1		315	50	98	"	"
EMERGENCY BILGE PUMP	1	1	0.0093	1		19		28	"	"
SANITARY PUMP	2	1	0.04	1		75	64	60	"	"
CIRC. SEA WATER PUMPS	2	1	0.04	1		75	64	60	"	"
CIRC. FRESH WATER PUMPS	2	1	0.232	not known		273	200	93	"	"
AIR BLOWERS	1	1	2.0092	"		75		100	"	"
FRESH WATER PUMP	1	1	2.0092	"		75		100	"	"
ENGINE TURNING GEAR	1	1	0.0062	1		10		90	"	"
ENGINE REVERSING GEAR	1	1	0.423	not known		34		140	"	"
LUBRICATING OIL PUMP	1	1	0.1	"		204	115	280	"	"
OIL FUEL TRANSFER PUMP	1	1	0.04	"		100	64	132	"	"
WINDLASS	1	1	0.04	"		100	64	112	"	"
WINCHES, FORWARD	4	1	0.04	"		100	64	112	"	"
WINCHES, AFT	4	1	0.04	"		100	64	112	"	"
STEERING GEAR A.C. MOTOR	1	1	0.0062	1		6		530	"	"
STEERING GEAR - MOTOR	2	1	0.048	not known		64		50	"	"
(a) MOTOR GENERATOR	2	1	0.04	"		55		52	"	"
(b) MAIN MOTOR	1	1	0.04	"		50		340	"	"
WORKSHOP MOTOR	1	1	0.025	"		158	50	70	"	"
VENTILATING FANS	1	1	0.0062	"		3		70	"	"
Refr. Mach. S.S.	1	1	0.0093	"		9.5		105	"	"
Refr. Mach. S.S.	1	1	0.0093	"		10.8		60	"	"
Refr. Mach. P.B.	1	1	0.01	"		21		55	"	"
Refr. Mach. P.B.	1	1	0.0093	"		765		15	"	"
Refr. Mach. P.B.	2	1	0.04	"		16		50	"	"
Refr. Mach. P.B.	1	1	0.04	"		20		100	"	"
Refr. Mach. P.B.	1	1	0.0093	"		6.6		80	"	"
Refr. Mach. P.B.	1	1	0.0093	"		4.4		80	"	"
Refr. Mach. P.B.	1	1	0.003	"		1.1		20	"	"



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

*on 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, motors, circuits & etc tested, all tried under working conditions & found satisfactory.*

*The electrical equipment of this vessel is shojibb, 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,

*8/5/42*

When received.

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Travelling Expenses (if any) *✓*

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

Committee's Minute

**FRL 16 OCT 1942**

Assigned

*See Ccs. Rpt. 2182*