

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

FEB 15 1939

Received at London Office

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 No. in Survey held at Greenock Date, First Survey 15:6:38 Last Survey 30-1-39
 Reg. Book. 87047 on the M.V. "AFRICA SHELL" (Number of Visits 13)
 Built at Greenock By whom built George Brown & Co (Hull) Ltd Yard No. 207 When built 1939
 Owners Shell Company of East Africa Ltd Port belonging to London
 Electric Light Installation fitted by J. Willis Contract No. 207 When fitted 1939
 Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution two 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 —, 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 manufacture and testing —

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 in engine room, 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 near generator

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 micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Sindango

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 generator and each outgoing circuit controlled by D.P. switch and fuses

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 1 ammeters 1 voltmeters —

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 earth lamps

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 **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 twin 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 **Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load** 2.6 Volts.

area of 0.04 square inch and above provided with soldering sockets **yes** **Cable Sockets, are the ends of all cables having a sectional 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 **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, lavatories, bathrooms and lavatories lead covered or run in conduit **yes**.

Support and Protection of Cables, state how the cables are supported and protected main L.C.A. clipped or run in galvanised steel tube.

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 none.

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 wire-rope 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 lead sheath and armouring efficiently earthed by means of clips or bonding glands.

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 fittings in gastight recess in pump room outside pump room in gastight conduit, how are the cables led

where are the controlling switches situated in accommodation.

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

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 free 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** **yes**, are all fuses of the filled 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	1	5	110	46	675	steam engine.		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	.0225	7	.064	46	46	42	Rubber	L.C.A.B.
SHORE CONNECTIONS	1	.0225	7	.064	46	46	90	"	"
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.003	3	.036	8.2	12	30	"	"
BOILER ROOM	1	.003	3	.036	8.2	12	15	"	"
AUXILIARY SWITCHBOARDS	1	.0045	7	.029	16.4	18.2	30	"	"
Eng. Room S.B.	1	.003	3	.036	4.8	12	100	"	"
FORECASTLE LGT. DB	1	.003	3	.036	1.8	12	150	"	"
NAVIGATION. DB	1	.003	3	.036	1.8	12	150	"	"
REFRIG. S.B.	1	.0045	7	.029	16.7	18.2	120	"	"
ACCOMMODATION									
AFT. S.B.	1	.0145	7	.052	26.7	37	90	"	"
WIRELESS									
SEARCHLIGHT	1	.003	3	.036	9.1	12	180	"	"
MASTHEAD LIGHT	1	.0015	1	.044	36	6.1	150	"	L.C.
SIDE LIGHTS	1	.0015	1	.044	36	6.1	60	"	"
COMPASS LIGHTS	1	.0015	1	.044	2	6.1	15	"	"
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	1	1	.003	3	.036	9.1	12	15	Rubber	L.C.A.B.
REFRIG. M/c.	1	1	.003	3	.036	4.6	12	30	"	"

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.

John Willis

Electrical Engineer.

Date *25th Jan 39*

COMPASSES.

Distance between electric generators or motors and standard compass *25 feet*

Distance between electric generators or motors and steering compass *18 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *36* Amperes *led into* feet from standard compass *led into* feet from steering compass.

A cable carrying *1.8* Amperes *8* feet from standard compass *6* feet 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.

For and on behalf of
GEORGE BROWN & CO. (MARINE) LTD.

George Brown

Director

Builder's Signature.

Date *25.1.39*

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 fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship are good.*

926
6/2/39

Noted
L.H.
21/2/39

Total Capacity of Generators *5* Kilowatts.

The amount of Fee ... £ *5* : - : { When applied for, *at 9.00*

Travelling Expenses (if any) £ *15/10* : { When received, *1. 4. 19 39 3/4*

R. I. Muochison *W. Haffner*
Surveyors to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 14 FEB 1939**

Assigned **SEE ACCOMPANYING MACHINERY REPORT.**



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