

Rpt. 13.

No. 60679

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

FEB 15 1939

Received at London Office

Date of writing Report 15-1 1939 When handed in at Local Office 6:2:1939 Port of Glasgow  
 No. in Survey held at Greenock Date, First Survey 15:6:38 Last Survey 30-1-1939  
 Reg. Book. 87047 on the M.V. "AFRICA SHELL" (Number of Visits 13)  
 Tons { Gross 706  
 Net 332  
 Built at Greenock By whom built George Brown & Co (Hull) Ltd 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 —, 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 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 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 yes

any point of the installation under maximum load 26 Volt.

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 yes, or waterproof insulating tape yes

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 yes, are the cap screws of brass yes, are the cables run in separate grooves yes 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 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 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 lead sheath and armoring efficiently earthed by means of clips or bonding glands yes 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 yes

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 aloft-holds 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 yes

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 yes 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 yes are air heaters constructed and fitted as per Rule yes

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 1 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 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 yes

have machines of over 100 BHP been inspected by the Surveyors during manufacture 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 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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amperes.			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. 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	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	82	12	30	"	"
BOILER ROOM	1	003	3	036	82	12	15	"	"
AUXILIARY SWITCHBOARDS									
Eng. Room S.B.	1	0045	7	029	164	182	30	"	"
FORECASTLE LGT. DB	1	003	3	036	48	12	100	"	"
NAVIGATION. DB	1	003	3	036	18	12	150	"	"
REFRIG. S.B.	1	0045	7	029	167	182	120	"	"
ACCOMMODATION									
AFT. S.B.	1	0145	7	052	267	37	90	"	"
WIRELESS									
SEARCHLIGHT	1	003	3	036	91	12	180	"	"
MASTHEAD LIGHT	1	0015	1	044	36	61	150	"	L.C.
SIDE LIGHTS	1	0015	1	044	36	61	60	"	"
COMPASS LIGHTS	1	0015	1	044	2	61	15	"	"
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
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										
WORKSHOP MOTOR										
VENTILATING FANS	1	1	003	3	036	91	12	15	Rubber	L.C.A.B.
REFRIG. M/C	1	1	003	3	036	46	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 25<sup>th</sup> 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 6 feet from standard compass 6 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.

G. 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 9/6.

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

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

Committee's Minute GLASGOW 14 FEB 1939

Assigned SEE ACCOMPANYING MACHINERY REPORT.



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