

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 27 MAR 1948

Date of writing Report 18.3.48 When handed in at Local Office 24th March 1948 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 16.9.47 Last Survey 17.3.1948
Reg. Book. (Number of Visits 19)on the S.S. "MATADIAN" Tons { Gross 6246
Net 3544

Built at Sunderland By whom built Sir James Laing & Sons Ltd Yard No. 776 When built 1948

Owners United Africa Co. Ltd Port belonging to Freetown, West Africa

Electrical Installation fitted by Sunderland Forge & Engineering Co. Ltd Contract No. 776 When fitted 1948

Is vessel fitted for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. No

Have plans been submitted and approved Yes System of Distribution Air-wire insulated Voltage of supply for Lighting 110

Heating — Power 110 Direct or Alternating Current, Lighting Yes Power Yes If Alternating Current state periodicity — Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule — Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

if not compound wound state distance between generators — and from switchboard — Where more than one generator is fitted are they

arranged to run in parallel No, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing — Have certificates of

test for machines under 100 kw. been supplied Yes and the results found as per rule Yes Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators on raised platform of Main Engine Room

is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situated

near unprotected combustible material state distance from same horizontally — and vertically — are the generators protected from mechanical

injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed on angle framework at aft E.D. bulkhead.

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material state distance from same horizontally — and vertically —, what insulation

material is used for the panels Heavy "Kindanys" if of synthetic insulating material is it an Approved Type Yes, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule — Is the frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead"

side of switches Yes Description of Main Switchgear for each generator and arrangement of equaliser switches a double-pole, air-

break circuit breaker with 2/p trips

and for each outgoing circuit a double pole, double throw knife switch and double-pole fuse.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 2

ammeters 2 voltmeters — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection — Earth Testing, state means provided E lamps coupled to E through bus & fuses

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled as

per Rule Yes If circuit breakers are provided for the generators, at what overload current did they open when tested 57, are the reversed current

protection devices connected on the pole opposite to the equaliser connection — have they been tested under working conditions, and at what current

did they operate — Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes

Cables, are they insulated and protected as per the appropriate Tables of the Rules Yes, if otherwise than as per Rule are they of an approved type —

state maximum fall of pressure between bus bars and any point under maximum load 2 C.V., are the ends of all cables having a sectional area of 0.01

square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the ends Yes

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with insulating compound. or waterproof insulating tape. 446. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage. 446. are cables laid under machines or floorplates. 446. if so, are they adequately protected. Are cables in machinery spaces, galleys, laundries, etc., lead covered. or run in conduit. State how the cables are supported and protected. *Trains fed into ship pipes along decks: in accommodation, feeders are L.C.B. in section Panels & D.B.'s. Hence in L.C.B. is not wanted and protected as required by metal or wood guards. Machinery spaces, L.C.A. on the surface.* Are all lead sheaths, armouring and conduits effectually bonded and earthed. 446. Refrigerated chambers, are the cables and fittings as per Rule. 446. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. 446. where unarmoured cables pass through beams, etc., are the holes effectively bushed. 446 and with what material. *Lead or felt* Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. 446. Emergency Supply, state position. and method of control.

Navigation Lamps, are they separately wired. 446. controlled by separate double pole switches. 446. and fuses. 446. Are the switches and fuses in a position accessible only to the officers on watch. 446. is an automatic indicator fitted. 446. Secondary Batteries, are they constructed and fitted as per Rule. are they adequately ventilated. what is the battery capacity in ampere hours.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. 446. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. 446. if so, how are they protected. *"Wigan" Knaptop the fittings on deck. "Kist" like is approved in combustible spaces.* and where are the controlling switches fitted. *in open quarters* are all fittings suitably ventilated. 446. are all fittings and accessories constructed and installed as per Rule. 446. Searchlight Lamps, No. of. whether fixed or portable. are their fittings as per Rule. Heating and Cooking, is the general construction as per Rule. are the frames effectually earthed. are heaters in the accommodation of the convection type. Motors, are all motors constructed and installed as per Rule. 446. and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. 446. if situated near unprotected combustible material state minimum distance from same horizontally. and vertically. Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. Control Gear and Resistances, are they constructed and fitted as per Rule. 446. Lightning Conductors, where required are they fitted as per Rule. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with. 446. are all fuses of the cartridge type. 446. are they of an approved type. 446. Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships. 446. Are the cables lead covered as per Rule. 446. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. 446. are they suitably stored in dry situations. 446. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. 446.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	30	110	272	500	Alban Engines		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	1.	30	2	19/083	272	382	20	Y.C. L.C.
" " EQUALIZER	2.	30	2	19/083	272	382	24	Y.C. L.C.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
Middle Section Panel P. S.B. 2.	1	37/103	198	585	590	Y.C.	L.C.A.
W.T. 7 Navigation Section - S.B. 1.	1	19/083	25	191	680	"	"
Off lighting Section Panel S.B. 3.	1	19/052	63	104	160	"	"
Off Power " " S.B. 4.	1	19/052	83	104	160	"	"
Large Lighting " " S.B. 5.	1	7/044	16	31	160	V.R.	"
Wokeup " " S.B. 6.	1	19/052	51	104	126	Y.C.	"
Engine Room Lighting S.P. S.B. 7.	1	19/052	32	104	16	"	"
Shore Connection 1st	2	19/083	-	382	108	"	"
" " 2nd	2	19/083	-	382	158	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	Off S.B. 1.	1	7/064	15	46	60	V.R.	L.C.
NAVIGATION LIGHTS	Off S.B. 1.	1	1/064	5	10	12	"	"
LIGHTING AND HEATING	Aluminium	1	1/064	-	10	90	"	"
Heating Bridge Lighting D. 1	Off S.B. 2.	1	7/036	9.7	24	110	"	"
Heater " " D. 2	"	1	7/036	17	24	74	"	"
Heater " " D. 3	"	1	7/044	25	24	40	"	"
Heater " " D. 4	"	1	7/044	24	31	64	"	"
Heater " " D. 5	"	1	7/044	28	31	32	"	"
Heater " " D. 6	"	1	7/044	27	31	62	"	"
Heater " " D. 7	"	1	7/044	23	31	76	"	"
Heater " " D. 8	"	1	7/036	20	24	96	"	"
Heater " " D. 9	"	1	7/044	19	31	54	"	"
Off Large	D. 10 Off S.B. 5	1	1/064	5	10	76	"	"
Heater " " D. 11	"	1	7/044	9	31	520	"	L.C.B.
Engine Room Lighting D. 13	Off S.B. 7	1	7/036	16	24	10	"	"
Heater " " D. 15	"	1	7/036	16	24	12	"	"
Ind. Lighting	D. 12 Off S.B. 2	1	7/036	5	24	240	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Thermocouple Bridge - Pot	1	2	1	7/036	18	24	60	V.R. L.C.
" " " "	1	2	1	7/036	18	24	90	" "
Pumping Exhaust Fan	1	2	1	1/064	3	10	50	" "
Thermocouple Pot	1	25	1	7/029	13.2	15	30	" "
" " " "	1	25	1	7/029	13.2	15	70	" "
Galley Exhaust Fan	1	2	1	1/064	3	10	108	" "
Fresh Water Pump	1	1	1	7/036	9	24	156	" L.C.A.
Distilling Machine	1	15	1	7/036	14	24	28	" "
Latrine Motor	1	2	1	7/036	18	24	80	" "
Grinder " "	1	1	1	7/036	9	24	20	" "
Refrigerating Fan	1	2	1	3/029	3	8	70	" "



The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

Sunderland Forge & Co. Ltd.
J. J. Gurney

Electrical Engineers.

Date *19-3-1948*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *20'*

Minimum distance between electric generators or motors and steering compass *19'*

The nearest cables to the compasses are as follows:—

A cable carrying *15* Ampères *10* feet from standard compass *on the* ~~foot from~~ steering compass.

A cable carrying *15* Ampères *on the* ~~foot from~~ standard compass *10* feet from steering compass.

A cable carrying Ampères 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.

Builder's Signature.

Date *22.3.48.*

Is this installation a duplicate of a previous case *No.* If so, state name of vessel *—*

Plans. Are approved plans forwarded herewith *No.* If not, state date of approval *21.10.47.*

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith *—*

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

The electrical equipment of this vessel has been installed under special survey in accordance with the approved plans and the "Rules for Electrical Equipment". The materials and workmanship are good. Upon completion the equipment operated satisfactorily on load and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Noted
AB
By *A. AB.*

Total Capacity of Generators *(2x30) 60.* Kilowatts.

The amount of Fee ... *£49. 0. 0.*

Travelling Expenses (if any) £ : : When received.19.....

S. S. Ward
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 30 APR 1948

Assigned

See F.E. mch. rpt.