

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) Received at London Office 3 JUL 1930

Date of writing Report 19 When handed in at Local Office 2-7-30 Port of Belfast

No. in Survey held at Belfast Date, First Survey 2nd March Last Survey 10th June 1930
Reg. Book. (Number of Visits 23)

26171 on the Steel Sc "DARIEN" Ex "LAMAREA" Tons { Gross Net

Built at Birkenhead By whom built Hammell, Laird & Lodd. Yard No. When built 1924

Owners Balboa Shipping Co (United Fruit Co) Mqs. Port belonging to

Electric Light Installation fitted by The Sunderland Forge & Eng. Co Ltd Contract No. When fitted 1930.

System of Distribution Single wire for lighting & double wire for Power.

Pressure of supply for Lighting 110 volts, Heating — 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 rating 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

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

Position of Generators Generator flat in Engine Room, are the lubricating arrangements of the generators as per Rule Yes

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 Generator flat in Engine Room

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

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 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, proportion of omnibus bars Yes

Yes, individual fuses to voltmeter, pilot or earth lamp. Yes, connections of switches Yes.

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Triple pole overload

& reverse current circuit breakers for each generator, Double pole switches & fuses for power feeder circuits, & single pole switches & fuses for lighting circuits.

Instruments on main switchboard 9 ammeters 5 voltmeters — synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Lamp, switch, & fuse on each pole connected to earth.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules 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 are the cables insulated and protected as per Tables IV or V of the Rules Yes

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 5.3

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound —

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

Support and Protection of Cables, state how the cables are supported and protected Lead Cord Arm & Braided supported by G.I. clips in Machinery Spaces & Lead Cord & Braided in Accom supported by brass clips.

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, if lights are fitted, 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 made

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 Fibre

Earthing Connections, state what earthing connections are fitted and their respective sectional areas 110 Volts negative bus bar 2 1/8 Copper connected to earth.

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 —

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 Yes
Strong wire guard over fitting, which is recessed into insulation.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected —

how are the cables led —

where are the controlling switches situated —

Searchlight Lamps, No. of —, whether fixed or portable —, are their fittings as per Rule —

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 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 Atyp proof, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

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 —

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office —

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	1	500	220	2275	670	Turbine (Steam)		
AUXILIARY	2	175	220	795		do. do.		
EMERGENCY	1	25	110	2275		oil engine		
ROTARY TRANSFORMER								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return). Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	6	1.25			2273	66	V. Cambre	Braided
	EQUALISER CONNECTIONS	1	1.25			1136	33	do	do
	AUXILIARY GENERATOR	2	1.0	127	103	795	56	do	do
	EMERGENCY GENERATOR	2	.2	37	083	227.2	144	do	Lead Cord & Braided.
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1	.06	19	064	54	25	V.I.R.	Lead Cord Arm & Braided.
	BOILER ROOM								
	ACCOMMODATION	1	.10	19	083	92.8	40	V.I.R.	Lead Cord & Braided
	NAVIGATION & OFFICERS	2	.0225	7	064	17.2	260	V.I.R.	Lead Cord & Braided
	HOLDS	1	.06	19	064	59.6	40	V.I.R.	do.
	WIRELESS	2	.06	19	064		96	V.I.R.	Lead Cord & Braided
	SEARCHLIGHT								
	MASTHEAD LIGHT	2	.002	3	029	.38	600	do	do
	SIDE LIGHTS	2	.002	3	029	.38	112	do	do
	COMPASS LIGHTS	2	.002	3	029	.19	40	do	do
	POOP LIGHTS								
	CARGO LIGHTS	1	.0225	7	064	16.2	40	V.I.R.	do.
	ARO LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return). Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.0225	7	064	41	104	V.I.R.	Lead Cord Arm & Braided.
	FORCED DRAUGHT FANS	2	.0225	7	064	48	96	do	do.
	CONDENSATE PUMP	2	.0225	7	064	32	120	do	do.
	ER AUXILIARIES	4	.075	19	072	97	104	do	do.
	SANITARY PUMP	1	.10	19	083	116	192	do	Lead Cord & Braided
	CIRC. SEA WATER PUMPS	2	.06	19	064	77	210	do	do.
	AUX. CIRCULATING PUMPS	1	.2	37	083	116	112	do	do.
	AIR COMPRESSOR	1	.06	19	064	117	96	V. Cambre	do.
	FRESH WATER PUMP	1	.0225	7	064	41	180	V.I.R.	Lead Cord Arm & Braided.
	ENGINE TURNING GEAR	1	.007	7	036	21	120	do	do.
	AUX. REFRIG. MACHY	2	.06	19	064	56.5	160	do	do.
	LUBRICATING OIL PUMPS	2	.007	7	036	14	120	do	do.
	OIL PURIFIER	1	.003	3	036	6	100	do	do.
	WINDLASS	1	.2	37	083	200	48	V. Cambre	do.
	WINCHES, FORWARD	4	.2 in sq.	37	083	520	384	do	do.
	WINCHES, AFT	4	.2 in sq.	37	083	520	320	do	do.
	MOTOR GENERATOR	2	.10	19	083	109	56	V.I.R.	Lead Cord & Braided
	STEERING MOTOR	2	.06	19	064	74	56	do	do.
	WORKSHOP MOTOR	1	.007	7	036	21	112	do	Lead Cord & Braided.
	VENTILATING FANS MOTOR	1	.104	19	052	56	280	do	do.
	EXCITER MOTOR	1	.75	91	103	455	64	V. Cambre	Lead Cord & Braided.
	REFRIG MACHY	2	.4	61	093	416	160	do	do.
	GALLEY		.2	37	083	271.3	160	V. Cambre	do.
	COOLER FANS FWD	4	.075	19	072	70	320	V. Cambre	do.
	COOLER FANS AFT	3	.06	19	064	70	192	V.I.R.	Lead Cord Braided, Steel Taped
	BRINE PUMP	2	.06	19	064	70	140	do	do.
	REFRIG CIRCULATING	1	.06	19	064	77	230	do	do.
	AUX. VENT FANS	2	.007	7	036	15.5	210	do	Lead Cord Arm & Braided
	MOTOR RM. VENT FAN	1	.04	19	052	48	340	do	do.

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

p. pro. THE SUNDERLAND FORGE & ENG. CO. LTD.,

Electrical Engineers.

Date 26.6.30.

Thos Thompson

COMPASSES.

Distance between electric generators or motors and standard compass 96 feet

Distance between electric generators or motors and steering compass 100 feet

The nearest cables to the compasses are as follows:—

A cable carrying 17.2 Ampères 6 feet from standard compass 8 feet from steering compass.

A cable carrying .19 Ampères 2 feet from standard compass 2 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 *all* course in the case of the standard

compass, and *nil* degrees on *all* course in the case of the steering compass.

WED WORKMAN CLARK (1928) LIMITED.
F. Cunningham
SECRETARY

Builder's Signature.

Date

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. *This installation has been installed under special survey & in accordance with the Rules. The workmanship is good and the installation has been tried out under working conditions and found satisfactory. In my opinion the vessel is eligible for record of "Electric light."*)

It is submitted that this vessel is eligible for THE RECORD. *Elec Light.*

(Signature)
5/7/30.

Total Capacity of Generators *875.* Kilowatts.

See Secretary's letter 26 Apr. 1930
The amount of Fee ... £ : : } When applied for, 19.....
Travelling Expenses (if any) £ : : } When received, 19.....

John. K. Williams.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *Elec Lt*

1m. 127. — Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



© 2020

Lloyd's Register Foundation