

Rpt. 13.

No. 32092

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

MAY 21 1937

Date of writing Report 24 May 1937 When handed in at Local Office 19 May 1937 Port of SunderlandNo. in Survey held at Sunderland
Reg. Book. Supp.Date, First Survey 22nd March Last Survey 10th May, 1937(Number of Visits 11)89153 on the S.S. "LLANDAFF"Tons { Gross 4855 + 835
Net 294 2902Built at Sunderland By whom built Bartram & Sons Ltd. Yard No. 275 When built 1937Owners (Evan Thomas Radcliffe & Co. Ltd.) Port belonging to LondonElectric Light Installation fitted by Bartram & Sons Ltd.Contract No. 275 When fitted 1937Is the Vessel fitted for carrying Petroleum in bulk NoSystem of Distribution Double 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 Only one fitted, 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 Engine room starboard side

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 Engine room starboard side

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 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

D.P. sw. & D.P. fuse on dynamo main; S.P. & D.P. sws. & D.P. fuses on outgoing circuits ✓

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

/ ammeter /

voltage —

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

E lamps coupled to E through fuses ✓

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

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Foundation

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 — **Fall [of] Pressure,** state maximum between bus bars and any point of the installation under maximum load *5.0 volts*

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 —, 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 *L.C. cables clipped up in engine room; V.L.R. tapes & braided cables in pipe in 'tween deck; L.C. cables clipped up in accom.*

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 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 *Lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas —, 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 —

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 —, how are the cables led —

where are the controlling switches situated —

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 —, whether fixed or portable —, are their fittings as per Rule —

Are 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 —, 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 — are all fuses of the fitted cartridge type — are they of an approved type —

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

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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	1	12.5	110	114	550	Single cylinder 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	.1	19	.083	114	118	9	V.I.R.	L.C. RA.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR									
ENGINE ROOM									
BOILER ROOM & Refrig.	1	.01	7	.044	28.5	31	240	V.I.R.	L.C. RA.
AUXILIARY SWITCHBOARDS									
ACCOMMODATION <i>Midship</i>	1	.01	7	.044	20	31	300	V.I.R.	L.C. RA. & in pipe
<i>Ditto Eng. Refrig.</i>	1	.01	7	.044	12	31	340	V.I.R.	L.C. RA. & in pipe
<i>Cargo lights</i>	1	.01	7	.044	16	31	280	V.I.R.	L.C. RA. & in pipe
WIRELESS	1	.01	7	.044	12	31	300	V.I.R.	L.C. RA. & L.C. RA.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.4	7.8	240	V.I.R.	In pipe
SIDE LIGHTS	1	.002	3	.029	.4	7.8	80	V.I.R.	L.C. RA.
COMPASS LIGHTS	1	.002	3	.029	.4	7.8	24	V.I.R.	L.C. RA.
STERN LIGHTS	1	.002	3	.029	.4	7.8	320	V.I.R.	In pipe
CARGO LIGHTS <i>(Clusters)</i>	1	.0017	40	.0076	1.8	5	20	V.I.R.	Cab type
FLOOD LAMPS	1	.0017	40	.0076	2.7	5	40	V.I.R.	Cab type
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	1	1	.0225	7	.064	45	46	40	V.I.R.	L.C. RA.
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	1	1	.01	7	.044	24	31	40	V.I.R.	L.C. RA.
VENTILATING FANS										
<i>Oil Separator Motor</i>	1	1	.007	7	.036	9.2	24	40	V.I.R.	L.C. RA.
<i>Refrigerator Motor</i>	1	1	.007	7	.036	12	24	300	V.I.R.	In pipe

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 ON BEHALF OF
BARTRAM and SONS LTD.

Geoil McFetrich
(GEOIL MCFETRICH)
SECRETARY & ACCOUNTANT.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass *120 feet*

Distance between electric generators or motors and steering compass *112 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *14* Amperes *on the* ~~from~~ standard compass *8* feet from steering compass.

A cable carrying *14* Amperes *8* feet from standard compass *on the* ~~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 *every* course in the case of the standard compass, and *nil* degrees on *every* course in the case of the steering compass.

FOR AND ON BEHALF OF
BARTRAM and SONS LTD.

Geoil McFetrich
(GEOIL MCFETRICH)
SECRETARY & ACCOUNTANT.

Builder's Signature.

Date

Is this installation a duplicate of a previous case *yes* If so, state name of vessel *S.S. "Llanaschi"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The above installation has been*)

fitted out under special survey. The materials used and the workmanship are good. On completion the dynamo, governor, main switchboard, switches, fuses, cables, motors and fittings were examined and tested under working conditions and found satisfactory and suitable for a classed vessel. This vessel is in my opinion eligible for notations E.S.D. and D.F.

Noted

Ham

24.5.37

Total Capacity of Generators *12.5* Kilowatts.

The amount of Fee ... £ *13* : - : When applied for, *19 MAY 1937*

Travelling Expenses (if any) £ : : When received, *2.7.37*

Santusow

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 25 MAY 1937

Assigned

See Std. 76 32092



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