

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 17 JUL 1929

Received at London Office.....

Date of writing Report 15th JUNE 1929 When handed in at Local Office 15 JULY 1929 Port of Liverpool

No. in Survey held at BIRKENHEAD Date, First Survey Apr 2nd Last Survey June 14th 1929
Reg. Book. (Number of Visits.....14.....)

92530 on the M.V. 'THORLAND CASTLE' Tons { Gross 6372
36237 Net 3808

Built at BIRKENHEAD By whom built CAMELL, LAIRD & CO. LTD. Yard No. 946. When built 1929.

Owners MESSRS. S. CHAMBERS & CO. LTD. Port belonging to Liverpool

Electric Light Installation fitted by SONDERLAND FORGE & ENGRS CO. LTD. Contract No. 946. When fitted 1929.

System of Distribution DOUBLE WIRE. Pressure of supply for Lighting 220. volts, Heating 220. 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 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 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 micanite 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.

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.

D.P. CIRCUIT BREAKERS FOR MAIN GENERATORS. D.P. SWITCH & FUSES FOR AUX. GENERATOR.

D.P. CIRCUIT BREAKERS. D.P. SWITCHES & FUSES FOR EACH OUTGOING CIRCUIT.

Instruments on main switchboard 5 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

EARTH LAMPS CONNECTED TO EARTH THRO' SWITCHES & FUSES. YES.

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 TWIN.** 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 **5.0 Volts.**

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 **Yes.**

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 COVERED & ARMoured & BRAIDED CABLES LAID IN STEEL CHANNELS & RUN ALONG DECK.**

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, 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**

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 **NONE**

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule **Yes.** are their connections made as per Rule **Yes.**

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven **NONE.**

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.**

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

how are the cables led **Yes.**

where are the controlling switches situated **Yes.**

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

Arc Lamps, other than searchlight lamps, No. of **Yes.** 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.**

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.**

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office **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	5	110	220	295	350	ROSTON HORNBYS ENGINES.	Oil	
AUXILIARY	1	25	220	105	350			
EMERGENCY								
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. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
				No.	Diameter.					
	MAIN GENERATOR	4	2.3	37	.085	500	295	160	VARNISHED CAMBRIC	L.C.B.
	EQUALISER CONNECTIONS	1	.15	37	.072	250	222	160	"	"
	AUXILIARY GENERATOR	2	.06	19	.064	105		220	"	"
	EMERGENCY GENERATOR									
	ROTARY TRANSFORMER									
	AUXILIARY SWITCHBOARDS									
	ENGINE ROOM									
	BOILER ROOM									
	ACCOMMODATION									
	LIGHTNING RING MAIN.	2	.0225	7	.064	46		180	RUBBER	L.C.B.
	FORWARD HEATERS.	2	.15	37	.072	150		230	VARNISHED CAMBRIC	"
	AFT HEATERS.	2	.15	37	.072	157		180	"	"
	ENG'S PANTRY GEAR	2	.0145	7	.052	34		100	RUBBER	"
	SALOON PANTRY GEAR.	2	.0145	7	.052	22.7		230	"	"
	WIRELESS									
	SEARCHLIGHT									
	MASTHEAD LIGHT									
	SIDE LIGHTS									
	COMPASS LIGHTS									
	POOP LIGHTS									
	CARGO LIGHTS									
	ARC LAMPS									
	HEATERS									

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
				No.	Diameter.					
	BALLAST PUMP	1	.1	19	.085	102	40	RUBBER	L.C.B.	
	MAIN BILGE LINE PUMPS									
	GENERAL SERVICE PUMP	1	.04	19	.052	48	40	"	"	
	EMERGENCY BILGE PUMP									
	SANITARY PUMP	1	.1	19	.085	102	40	"	"	
	CIRC. SEA WATER PUMPS	1	.1	19	.085	102	40	"	"	
	CIRC. FRESH WATER PUMPS									
	AIR COMPRESSOR	2	.3	2.37	.072	450	60	VARNISHED CAMBRIC	"	
	FRESH WATER PUMP									
	ENGINE TURNING GEAR	2	.0225	7	.064	40	160	RUBBER	"	
	ENGINE REVERSING GEAR									
	LUBRICATING OIL PUMPS	1	.04	19	.052	53	40	"	"	
	OIL FUEL TRANSFER PUMP	1	.04	19	.052	53	40	"	"	
	WINDLASS									
	WINCHES, FORWARD R/W MAIN.	5	.3	37	.103	424	350	VARNISHED CAMBRIC	"	
	WINCHES, AFT R/W MAIN.	5	.3	37	.103	424	490	"	"	
	STEERING GEAR—									
	(a) MOTOR GENERATOR									
	(b) MAIN MOTOR	2	.15	37	.072	134	590	RUBBER	"	
	WORKSHOP MOTOR	1	.007	7	.036	21	60	"	"	
	VENTILATING FANS									
	WINCHES MDSHIP.	4	.3	37	.103	424	120	VARNISHED CAMBRIC	"	
	OIL PURIFIERS	3	.01	7	.044	30	10	RUBBER	"	
	OIL BLOWER	1	.007	7	.036	18	20	"	"	
	REFRIG. MACHINE	1	.007	7	.036	22	60	"	"	

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.

M^r. Sunderland Forge - Eng^s C^o L^{td}

Electrical Engineers.

Date 22-6-29

COMPASSES.

Distance between electric generators or motors and standard compass 110 FEET.

Distance between electric generators or motors and steering compass 108 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 4.27 Ampères 10 feet from standard compass 8 feet from steering compass.

A cable carrying Ampères feet from standard compass 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 2° E degrees on all courses N.E. by E. - N. by W course in the case of the standard compass, and 3° E degrees on all courses E. by S. - S. by E course in the case of the steering compass.

GAMMELL LAIRD AND COMPANY LIMITED

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 fitted under special Survey and is in accordance with the Rule requirements. It has been examined under full working conditions and found satisfactory and the vessel is, in my opinion, eligible for record Electric Light in Register's book.

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

J. R. Milton
23.7.29

Total Capacity of Generators 418 Kilowatts.

The amount of Fee ... £41. 19. 0

Travelling Expenses (if any) £ ...

J. R. Milton

Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL 16 JULY 1929

Assigned

Electric Light.

1m. 28.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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