

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 14 JUL 1928  
LIVERPOOL

Date of writing Report 10 When handed in at Local Office 12 JULY 1928 Port of LIVERPOOL

No. in Survey held at Birkenhead Date, First Survey Jan'y 30<sup>th</sup> Last Survey July 2<sup>nd</sup> 1928  
Reg. Book. (Number of Visits 37)

43035 on the TACTICIAN S.S. Tons { Gross 5887 Net 3683

Built at BIRKENHEAD By whom built CAMMELL LAIRD & Co. LTD. Yard No. 935 When built 1928

Owners T&J HARRISON Port belonging to LIVERPOOL

Electric Light Installation fitted by CAMPBELL & ISHERWOOD LTD. Contract No. When fitted 1928

System of Distribution SINGLE WIRE ✓

Pressure of supply for Lighting 110 volts, Heating NIL volts, Power NIL volts.

Direct or Alternating Current, Lighting DIRECT Power NIL

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 COMPOUND.

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. ONE GENERATOR, 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 Are the lubricating arrangements of the generators as per Rule YES.

Position of Generators DYNAMO RECESS AT STARBOARD SIDE OF 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 hot situated near 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 ON BULKHEAD ADJACENT TO DYNAMO.

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 mica-nite 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 NONE, proportion of omnibus bars, 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 6 CIRCUIT S.P.

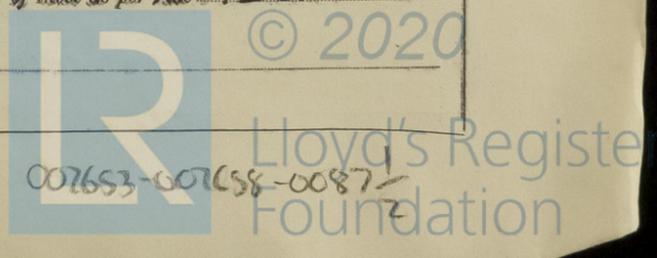
SWITCHBOARD. 1-S.P. 150 AMP. MAIN SWITCH & FUSE. 6-S.P. 50AMP. CIRCUIT SWITCHES AND FUSES.

Instruments on main switchboard ONE ammeters ONE voltmeters NONE 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 ✓

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 1 VOLT

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 boiler, 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 MAIN CABLES ARE LEAD COVERED AND Laid IN HEAVY PIPING ALONG DECK. IN ENGINE ROOM ALL CABLES ARE LEAD COVERED ARMOURD & BRAIDED. IN ACCOMMODATION - Y.I.R. IN CASING.

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 ✓

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 & FIBRE.

Earthing Connections, state whether earthing connections are fitted and their size, give sectional areas. MAIN EARTH IS 3/4" BRASS BOLT. ALL LIGHTS ARE EARTHED WITH 3/8" BRASS SCREWS.

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 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 NONE.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where 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 No

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected No

how are the cables led ✓

where are the controlling switches situated ✓

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

Arc Lamps, other than searchlight lamps, No. of NONE., are their live parts insulated from the frame of case ✓, are their fittings as per Rule ✓

Motors, are their working parts readily accessible NONE., are the coils self-contained and readily removable for replacement NONE.

are the brushes, brush holders, terminals and lubricating arrangements as per Rule NONE, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material ✓

are they protected from mechanical injury and damage from water, steam or oil ✓, are their axes of rotation fore and aft ✓

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 ✓

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule ✓

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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	ONE.	12.5	110	114	450	BELLUS & MORCOM STEAM ENGINE.		
AUXILIARY								
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...	ONE.	.15	37	.072	75	20	Y.I.R.	L.C. IN PIPING.
	EQUALISER CONNECTIONS								
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	ONE	.002	3	.029	2	8	Y.I.R.	L.C. & B.
	BOILER ROOM	ONE	.002	3	.029	2	45	Y.I.R.	L.C. & B.
	ACCOMMODATION	ONE	.002	3	.029	2	130	Y.I.R.	L.C. ALSO L.C. & B.
	WIRELESS	ONE		7	.052	10	250	Y.I.R.	L.C. & B.
	SEARCHLIGHT	ONE		19	.044	25	220	Y.I.R.	L.C. & B. ALSO L.C.
	MASTHEAD LIGHT	ONE		3	.036	.6	150	Y.I.R.	L.C. IN PIPING.
	SIDE LIGHTS	TWO		3	.036	1.3	100	Y.I.R.	WOOD CASING
	COMPASS LIGHTS	TWO		3	.036	.6	50	Y.I.R.	WOOD CASING
	POOP LIGHTS	ONE		7	.036	10	120	Y.I.R.	L.C.
	CARGO LIGHTS	ONE		7	.052	17.5	170	Y.I.R.	L.C. & L.C. & B. IN PIPING.
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current in Area.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	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								

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.

CAMPBELL & ISHERWOOD, LTD

*C. J. Maycock*

Electrical Engineers.

Date 3-7-28.

COMPASSES.

Distance between electric generators or motors and standard compass 165 Ft.

Distance between electric generators or motors and steering compass 155 Ft.

The nearest cables to the compasses are as follows:—

A cable carrying 20 Amperes 20 feet from standard compass 12 feet from steering compass.

A cable carrying .5 Amperes 10 feet from standard compass LED INTO steering compass.

A cable carrying .5 Amperes LED INTO standard compass 10 feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be Nil degrees on all courses in the case of the standard compass, and 2°W degrees on all courses N. by E - E. N. E course in the case of the steering compass.

GAMMELL LAIRD AND COMPANY LIMITED.

*W. S. Johnson*

Builder's Signature.

Date

MANAGING DIRECTOR.

Is this installation a duplicate of a previous case Yes If so, state name of vessel *Sy Logician*

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 Rules. On completion it was examined under full working conditions & found satisfactory, & is how slight in my opinion for record of 'Elec Light'*

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

*Elec. Light*

*J. S. M.*  
*18/7/28.*

Total Capacity of Generators 12 1/2 Kilowatts.

The amount of Fee ... £ 12 : 10 : { When applied for, 12 JULY 1928

Travelling Expenses (if any) £ ✓ : ✓ : { When received, 3. 8 : 28

*J. S. Milton & W. S. Shields*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL 13 JULY 1928

Assigned *Electric Light.*

Im. 1.28.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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