

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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Date of writing Report 19 When handed in at Local Office 3/3/1925 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle Date, First Survey 22<sup>nd</sup> Jan. Last Survey 2<sup>nd</sup> Febr. 1925  
Req. Book. Supp (Number of Visits... 5...)

88683 on the "Eaton" Tons { Gross Net

Built at Haverton Hill-on-Tees By whom built Furness S.P. Co. Ltd Yard No. 50 When built 1924

Owners The Avenue Shipping Co. Ltd Port belonging to London

Electric Light Installation fitted by Messrs Furness Shipbuilding Co. Ltd Contract No. 50 When fitted 1924

System of Distribution Double Wire Insulated ✓

Pressure of supply for Lighting 110V volts, Heating - volts, Power - 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 overload 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 No, is an adjustable regulating resistance fitted in series with each shunt field -

Are all terminals accessible and clearly marked yes, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited yes

Are the lubricating arrangements of the generators as per Rule yes

Position of Generators 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 -

and - , are the generators protected from mechanical injury and damage from water, steam or oil yes

are their axis 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 Starboard side of Engine Room on Eng Store Bulkhead

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, incombustible 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 connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework - and is the frame effectively earthed yes

Are the following fittings as per Rule, viz.: - 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. switch & fuse for each Generator; Double Pole Change-Over Switch for connecting each generator alternatively to bus bars; D. P. Switch for each outgoing circuit; Removable porcelain fuses

Instruments on main switchboard 1 ammeters 1 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 Two 10 c.p. lamps in series & middle point earthed, connected to each bus bar by means of switch & fuse

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes

Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes



**Insulation of Cables**, state type of cables, single or twin *Both* are the cables insulated and protected as per Tables III or IV of the Rules *Table III*

**Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load *5 volts*

**Cable Sockets and other connections**, are the ends of all cables having a sectional area of 0.007 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 *Main feeder cables are run along the underside of upper deck; all cables which are exposed are lead covered armoured & braided*

**Support and Protection of Cables**, state how the cables are supported and protected *Lead covered & armoured cables are supported by galvanised iron clips, lead covered cables 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 VI *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 *Porcelain junction boxes protected with cast iron covers*

**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 Positions**, 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 *Switchboard .06*  
*Dynamo .06*  
 are their connections made as per Rule

**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*, are separate screens provided for the use of oil and electric side lights *yes*  
 are separate oil lanterns provided for the mast head lights and side lights *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  
 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 axis 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

**Control Gear and Resistances**, are the generator field and motor speed regulators, starters and controllers constructed 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  
 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	12 1/2	110	109	340	Sunderland Forge		
STARTER BY SET ...	1	12 1/2	110	109	340	apex type Engine		
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. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
ENR 32036 DYN 32046 ENR 32037 DYN 32047	MAIN GENERATOR...	2	.1500	27	.072	108.4	48'	V. I. R	Lead covered,
	AUXILIARY GENERATOR ...	2	.1500	27	.072	-	54'	V. I. R	armoured & braided
	EMERGENCY GENERATOR ...								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS ...								
	ENGINE ROOM ...	2	.0070	7	.036	10	30'	V. I. R	Lead covered
	NET ...	2	.0100	7	.044	6	400'	V. I. R	armoured and braided
	MAY (INSTRUMENTS) ...	2	.0100	7	.044	3.5	360'	V. I. R	do.
	MIDSHIP ...	2	.0100	7	.044	17	100'	V. I. R	do.
	WIRELESS ...	2	.0100	7	.044	12	360'	V. I. R	Lead covered
	SEARCHLIGHT ...	2	.002	3	.029	9	300'	V. I. R	armoured and braided
	MASTHEAD LIGHT... FORE	2	.002	3	.029	9	400'	V. I. R	do.
	SIDE LIGHTS ...	2	.002	3	.029	9	60'	V. I. R	Lead covered
	COMPASS LIGHTS ...	2	.002	3	.029	6	30'	V. I. R	do.
	PORT LIGHTS ...	2	.002	3	.029	11	30'	V. I. R	Lead covered,
	CARGO LIGHTS ...	2	.0100	7	.044	29	100'	V. I. R	armoured and braided
	ARC 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 ...								
	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 ...								
	WORKSHOP MOTOR ...								
	VENTILATING FANS ...								
3305	WORKSHOP MOTOR	1	.0225	7	.064	10	140'	V. I. R	Lead covered
5369	OIL SEPARATOR	1	.0070	7	.036	9	200'	V. I. R	armoured
5208d/11	"	1	.0070	7	.036	6	150'	V. I. R	and braided
78255	GALLEY BLOWER	1	.0020	3	.029	15	140'	V. I. R	
78256	"	1	.0020	3	.029	15	144'	V. I. R	

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.

FURNESS SHIPBUILDING CO. LIMITED

*P. S. Glover*

Electrical Engineer.

Date 25th Feb 1925

COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows :-

A cable carrying 1.1 Ampères 44 feet from standard compass 44 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 *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.

FURNESS SHIPBUILDING CO. LTD

*J. McGovern*

Builder's Signature.

Date 25th Feb 1925

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.)

*The above installation is in accordance with the Society's Rules. The vessel is in my opinion eligible for notation elec light, wireless*

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

*J.W.D.*  
6/3/25

Total Capacity of Generators *25* Kilowatts

The amount of Fee ... £ 20: -  
Travelling Expenses (if any) £ : :  
When applied for, 25/2/1925  
When received, 21.3.1925

*W. T. Badger*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

50.10.13.—Transfer. \*The Surveys are requested not to write on or below the space for Committee's Minute.



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