

Rpt. 13.

No. 14288

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office..... 28 NOV 1930

Date of writing Report 21. 11. 1930 When handed in at Local Office 26. 11. 1930 Port of Middlesbrough

No. in Survey held at Hawerton Hall on Tees Date, First Survey 12 Aug Last Survey 11. 11. 1930

Reg. Book.

90508 Sup on the M. V. F. H. Bedford Jnr

(Number of Visits... 27)

Tons { Gross 11952  
Net 6831

Built at Hawerton Hall on Tees By whom built Furness Shipbuilding Co Ltd No. 176 When built 1930

Owners Standard Shipping Co Port belonging to Dantzig

Electric Light Installation fitted by Furness Shipbuilding Co Ltd Contract No. 176 When fitted 1930

Is the Vessel fitted for carrying Petroleum in bulk *yes*

## System of Distribution

*Double wire*

Pressure of supply for Lighting 110 volts, Heating - volts, Power 230 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* Are the lubricating arrangements of the generators as per Rule *yes*

Position of Generators 105 Kwts. Fwd end of Engine Room 45 Kwts on Stringer Std side of Eng 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 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 *Forward end of Engine Room on Platform*

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 and is the frame effectually 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 Breaker with equaliser switch for each generator. Double Pole switch & fuses for each outgoing circuit*

Instruments on main switchboard 5 ammeters 4 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 *2-10 watt lamps in series and middle point earthed*

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*



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Cables: Single, twin, concentric, or multicore *Single & Twin* are the cables insulated and protected as per Tables IV or V of the Rules *IV*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *4.8 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

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 and armoured cables are supported by means of galv iron clips on steel plating. Lead covered cable 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 *Porcelain connections in w/t bases*

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 *Brass*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *50% of area of main cables*

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 *-*

*Special fittings outside Pump Rooms*, how are the cables led *in No. 4 conduit*

where are the controlling switches situated *Outside Pump Room entrances*

Searchlight Lamps, No. of *1*, whether fixed or portable *fixed*, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *2*, are their live parts insulated from the frame or case *-*, are their fittings as per Rule *1*

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 *-*

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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	105	230	456	310	Gas Oil Engine		
EMERGENCY	1	45	230	196	400	Steam Engine		
ROTARY TRANSFORMERS	2	25	230/115	217.5	1250			

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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
2 MAIN GENERATORS each.	1	.5	61	.103	426	200	200	V.C	L.C.A.B
EQUALISER CONNECTIONS	-	.25	37	.093	309	100	100	V.C	..
MAIN GENERATOR	1	.15	37	.072	222	90	90	V.C	..
EQUALISER CONNECTIONS	-	.1	19	.083	172	45	45	V.C	..
EMERGENCY GENERATOR	1	.1	19	.083	172	60	60	V.C	..
ROTARY MOTOR	1	.25	37	.093	222.8	309	60	V.C	..
2 TRANSFORMER	1	.1	19	.083	172	30	30	V.C	..
ENGINE ROOM	1	.0225	7	.064	30.0	68	40	V.C	..
ENGINE ROOM	1	.0225	7	.064	30.5	68	30	V.C	..
SPEEDY GYRO EQUIP	1	.0100	7	.044	28.0	31.5	640	V.C	..
GALLEY EQUIP.	1	.1500	37	.072	180.0	222.0	250	V.C	..
ACCOMMODATION	1	.0600	19	.064	21.3	122.0	210	V.C	..
ENGINEERS	1	.0225	7	.064	20.0	68.0	220	V.C	..
CREW	1	.2500	37	.093	101.0	309.0	600	V.C	..
SHIP'S NAVIGATION	1	.0225	7	.064	20.0	68.0	630	V.C	..
WIRELESS	1	.0225	7	.064	20.0	68.0	630	V.C	..
SEARCHLIGHT	1								
MASTHEAD LIGHT	1								
SIDE LIGHTS	1								
COMPASS LIGHTS	1								
POOP LIGHTS	1								
CARGO LIGHTS	1								
ARC LAMPS	1								
HEATERS	1								

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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.0225	7	.064	30	63.0	80	V.C	L.C.A.B
MAIN BILGE LINE PUMPS	1	1	.0600	19	.064	50	122.0	80	..	..
GENERAL SERVICE PUMP	1	1	.0100	7	.044	12	31.5	40	..	..
DELLING MACHINE	1	1	.0100	7	.044	29	31.5	100	..	..
EMERGENCY BILGE PUMP	1	1	.0400	19	.052	60	94.0	85	..	..
SANITARY PUMP	1	1	.0045	7	.029	15	18.2	200	V.I.R	..
CIRC. SEA WATER PUMPS	2	1	.0030	3	.036	9	12.0	40	..	..
CIRC. FRESH WATER PUMPS	1	1	.0030	3	.036	4	12.0	50	..	..
COND. CIRC. PUMP	1	1	.0100	19	.083	80	172.0	90	..	..
COND. CIRC. PUMP	1	1	.0045	7	.029	15	18.2	200	V.I.R	..
FRESH WATER PUMP	1	1	.0030	3	.036	9	12.0	40	..	..
SHAPING MACHINE	1	1	.0030	3	.036	4	12.0	50	..	..
GRINDER	1	1	.0100	7	.044	29	31.5	200	V.C	..
LUBRICATING OIL PUMPS	2	1	.0045	7	.029	12	18.2	60	V.I.R	..
WINDLASS	1	1	.0030	3	.036	4	12.0	50	..	..
WINCHES, FORWARD	1	1	.0030	3	.036	4	12.0	50	..	..
WINCHES, AFT	1	1	.0030	3	.036	4	12.0	50	..	..
STEERING GEAR—										
(a) MOTOR GENERATOR	2	1	.0600	19	.064	100	122	100	V.C	..
(b) MAIN MOTOR	2	1	.0600	19	.064	100	122	100	V.C	..
WORKSHOP MOTOR	2	1	.0100	7	.044	12	31.5	80	..	..
FORCED DRAUGHT FANS	1	1	.0100	7	.044	16	31.5	240	..	..
REFRIG.	1	1	.0030	3	.036	3.5	12.0	40	V.I.R	..
ICED WATER PUMP	1	1	.0030	3	.036	8.0	12.0	65	..	..
LUB OIL PURIFIER	1	1	.0100	7	.044	28.7	31.5	50	V.C	..
LATHE, 7 H.P.	1	1	.0030	3	.036	4.5	12.0	50	V.I.R	..
LATHE, 1 H.P.	1	1	.0030	3	.036	4.5	12.0	50	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

*P. L. Glover*

Electrical Engineer.

Date *20th Nov 1930*

COMPASSES.

Distance between electric generators or motors and standard compass *250'*

Distance between electric generators or motors and steering compass *240'*

The nearest cables to the compasses are as follows:—

A cable carrying *15* Ampères *4* feet from standard compass *4* 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* courses in the case of the standard compass, and *nil* degrees on *all* courses in the case of the steering compass.

*J. Mc Govern*

Builder's Signature.

Date *20th Nov 1930*

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 materials and workmanship are good.  
This electric installation has been fitted aboard under special survey in accordance with the Rules and Approved Plans; it has been tested under working conditions with satisfactory results and is, in our opinion, suitable for a vessel classed with this Society.*

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

*(Signature)*  
*21/11/30*

Total Capacity of Generators *255.* Kilowatts.

The amount of Fee ... .. £ *37-17-6* When applied for, *14 Nov 1930*

Travelling Expenses (if any) £ : : *2-1-31* When received, *21/11/30*

*P. J. McA...*

*S. C. Clayton*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

*Elec. Lt.*



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Im. 11.24.—Registrar.  
(The Signatories are requested not to write on or below the space for Committee's Minute.)