

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

31 JUL 1928

Date of writing Report 30. 7. 1928 When handed in at Local Office 30. 7. 1928 Port of MIDDLESBROUGH

No. in Survey held at *Waverton Hill on Ties* Date, First Survey 8. 3. 28 Last Survey 15. 6. 1928
Reg. Book. (Number of Visits 20)

90256 Sup on the *M. V. "Gulfbird"*

Tons { Gross 10848
Net 6370.

Built at *Waverton Hill on Ties* By whom built *Furness Shipbuilding Co Ltd* Yard No. 122 When built 1928

Owners *Gulf Refining Co.* Port belonging to *Pittsburgh Pa. P. C. Arthur (Texas)*

Electric Light Installation fitted by *Furness Shipbuilding Co Ltd* Contract No. 122 When fitted 1928

System of Distribution *Double Wire -*

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

Position of Generators *Forward end of Machinery Space -*
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 Machinery Space -*
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 -*

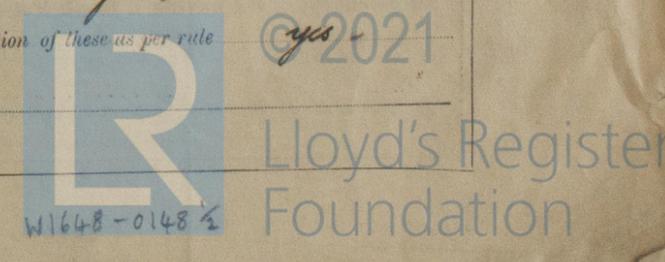
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches *Triple Pole circuit Breaker for each Generator, Double Pole switches & fuses for each outgoing circuit - cartridge type Fuses -*

Instruments on main switchboard 9 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. *III -*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *4. V. -*

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 cables are supported on perforated steel plating by means of galv iron clips. Lead covered cables supported by brass clips -*

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 *Porcelain junction boxes in brass cases -*

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 *All 220 volt circuits fitted with earthing connections 50% in area of feeder 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 *yes -*

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 *In Pump Rooms special gas-tight fittings through galv conduit tubes -*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *In Pump Rooms special gas-tight fittings through galv conduit tubes -*

where are the controlling switches situated *Outside pump rooms -*

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 *1*, 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	90	220	409	300	3 Cyls. M.A.N. H.S.C.S.A.	Diesel Oil	Above 150° F.
AUXILIARY	1	35	220	159	420	Oil Engine		
EMERGENCY						Enclosed type Steam Engine		
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.				
2	MAIN GENERATORS. EACH.	2	5000	61	.103	409	35'	Varnished Cambric.	
	EQUALISER CONNECTIONS	1	2500	37	.093	-	35'		
	MAIN AUXILIARY GENERATOR	2	1000	19	.083	159	50'		
	EQUALISER CONNECTIONS	1	0400	19	.052	-	50'		
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS							V. I. R.	LEAD COVERED
	ENGINE ROOM MOTOR	2	.0225	7	.064	44.3	25'		ARMOURD AND BRAIDED
	BOILER ROOM ROOM								
	ACCOMMODATION								
	NAVIGATION INST	2	.0225	7	.064	3.4	700'		
	MIDSHIP ACCOMMODATION	2	.0400	19	.052	30.0	620'		
	FWD ACCOM & PUMP RM	2	.0400	19	.052	18.0	800'		
	CREW ACCOMMODATION	2	.0225	7	.064	27.5	230'		
	ENGINEERS ACCOMM	2	.0400	19	.052	29.5	200'		
	WIRELESS	2	.0100	7	.044	6.0	620'		
	SEARCHLIGHT	2	.0100	7	.044	5.0	750'		LEAD COVERED & ARMOURD
	MASTHEAD LIGHT MAIN	2	.0030	3	.036	9	400'		
	MASTHEAD LIGHT MAIN	2	.0030	3	.036	9	410'		
	SIDE LIGHTS	2	.0020	3	.029	9	100'	V. I. R.	LEAD COVERED & BRAIDED
	COMPASS LIGHTS	2	.0020	3	.029	1	30'		
	STERN POOP LIGHTS	2	.0030	3	.036	9	750'		LEAD COVERED & ARMOURD
	6 CARGO LIGHTS each	2	.0020	3	.029	27.2 (total)	300'		
	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								
	MAIN BILGE LINE PUMPS	1	.0100	7	.044	18.0	200'		
	GENERAL SERVICE PUMP	1	.1000	19	.083	152.0	230'		
	EMERGENCY BILGE PUMP								
	SANITARY PUMP	1	.0100	7	.044	32.0	220'	VARNISHED CAMBRIC	LEAD COVERED ARMOURD AND BRAIDED
	CIRC. SEA WATER PUMPS	1	.0400	19	.052	97.0	210'		
	CIRC. FRESH WATER PUMPS	2	.0400	19	.052	97.0	220'		
	AIR COMPRESSOR	1	.2500	37	.093	277.0	225'		
	FRESH WATER PUMP	1	.0400	19	.052	97.0	230'		
	ENGINE TURNING GEAR	1	.0225	7	.064	77.0	290'		
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS	1	.0100	7	.044	28.0	250'		
	OIL FUEL TRANSFER PUMP	1	.0100	7	.044	18.0	210'		
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT								
	STEERING GEAR								
	(a) MOTOR COMPASS	1	.0600	19	.064	45.0	430'	VARNISHED CAMBRIC	LEAD COVERED ARMOURD AND BRAIDED
	(b) MOTOR	1	.0600	19	.064	45.0	430'		
	WORKSHOP MOTOR	1	.0100	7	.044	28.0	320'		
	VENTILATING FANS								
	AUX OIL FUEL PUMP	1	.0400	19	.052	97.0	200'		
	REFRIG	1	.0100	7	.044	20.0	320'		
	6 TON CRANE	1	.0100	7	.044	11.0	260'		
	CENTRIFUGE	1	.0100	7	.044	11.0	260'		
	CENTRIFUGE	1	.0100	7	.044	11.0	260'		
	OIL PRIMING PUMP	1	.0030	3	.036	5.0	100'		

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.

FURNES SHIPBUILDING CO. LIMITED

P. S. Glover

Electrical Engineers.

Date *24th July 1928*

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 *1* 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.

FURNES SHIPBUILDING CO. LIMITED,

Jas. M. Robertson

Builder's Signature.

Date *24. 7. 28*

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 has been tested with satisfactory results. In my opinion it is suitable for a vessel classed with this Society.*

It is submitted that this vessel is eligible for the REGD. Elec. Light

J. M. 15/7/28.

Total Capacity of Generators *215* Kilowatts.

The amount of Fee ... £ *36-17-6* When applied for, *20.6.19.28.*

Travelling Expenses (if any) £ : : When received, *25-6-19.28.*

M. Man.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *Elec. Light*



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Im. 1. 27.—Transfer. (The Surveys are requested not to write on or below the space for Committee's Minute.)