

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

14 MAR 1928

Received at London Office

Date of writing Report 19 When handed in at Local Office 13/3/28 Port of NEWCASTLE-ON-TYNE.

No. in Survey held at Newcastle.

Date, First Survey 19 Oct 27 Last Survey 17 Jan 1928.

Reg. Book, Supp.

(Number of Visits.....)

40009 on the M.V. Belmoira

Tons { Gross
Net

Built at Newcastle.

By whom built Armstrong Whitworth & Co. Ltd. No. 1027 When built 1928

Owners A/S. Rederiet Belmoira

Port belonging to Oslo

Electric Light Installation fitted by Messrs Armstrong Whitworth & Co. Ltd. Contract No. 1027. When fitted 1928

System of Distribution *Double wire*

Pressure of supply for Lighting *110* volts, Heating *110* volts, Power *110* 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 *Yes*, 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 *On dynamo flat at after end 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 *On dynamo flat at after end of 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, 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 *Yes*, 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 *Double pole overload reverse current circuit breakers with equalising switch for each generator. Double pole switch & fuses for each outgoing circuit*

Instruments on main switchboard *two* ammeters *two* 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 leakage detector*

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.*

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Lloyd's Register
Foundation

W341-0028

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

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *4.0 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 *Yes*

Support and Protection of Cables, state how the cables are supported and protected *Lead covered varnished cable clipped up with galvanised iron clips in machinery spaces. The acc. wires with lead covered cable secured 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 *Yes*

Joints in Cables, state if any, and how made, insulated, and protected *none made*

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 bushes 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 —, 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 *none fitted*

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 *none fitted*

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 type, or of the flame proof type —, if not of this type, state distance of the combustible material horizontally or vertically above the motors —

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 —

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 ...	2	50	110	455	350	4-cylinder oil 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...	2	.7435	91	.103	455	50	V.I.R.	Lead covered & arm'd
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS	2	.1009	19	.083	109	80	bo	bo
	ENGINE ROOM <i>See Box</i>	2	.02214	4	.064	34.84	30	bo	bo
	BOILER ROOM <i>See Box</i>	2	.00455	4	.029	9.04	5	bo	bo
	Navigation <i>See Box</i>	2	.02214	4	.064	8.5	315	bo	bo
	Midship <i>See Box</i>	2	.1168	37	.064	113.1	280	bo	bo
	bo <i>See Box</i>	2	.02214	4	.064	11.1	280	bo	bo
	Aft <i>See Box</i>	2	.01046	4	.044	12.8	90	bo	bo
	Engs <i>See Box</i>	2	.00299	3	.036	5.8	80	bo	Lead covered
	Officers <i>See Box</i>	2	.00299	3	.036	7.0	5	bo	bo
	Officer's <i>See Box</i>	2	.06	19	.064	79.54	90	bo	Lead covered & arm'd
	Crews <i>See Box</i>	2	.06	19	.064	81.8	50	bo	bo
	Eng Rm <i>See Box</i>	2	.0396	19	.052	56	100	bo	bo
	100 gall water heater	2	.01046	4	.052	36.8	70	bo	bo
	30 gall <i>See Box</i>	2	.00299	3	.036	8.8	30	bo	Lead covered
	Hot plate in painting	2	.00299	3	.036	7.2	10	bo	bo
	WIRELESS	2	.02214	4	.064	15.0	315	bo	Lead covered & arm'd
	<i>See Box</i>	2	.00299	3	.036	.9	280	bo	Lead covered & arm'd
	MASTHEAD LIGHT	2	.00194	3	.029	.9	120	bo	Lead covered
	SIDE LIGHTS	2	.00194	3	.029	.9	100	bo	bo
	COMPASS LIGHTS	2	.00194	3	.029	.38	30	bo	bo
	STERN LIGHTS	2	.00299	3	.036	.9	350	bo	Lead covered & varnished
	CARGO LIGHTS	2	.00299	3	.036	2.18	250	bo	bo
	ARC LAMPS <i>2 kW. Radiation</i>	2	.00701	7	.036	18.1	30	bo	Lead covered
	HEATERS <i>1 kW. <i>See Box</i></i>	2	.00299	3	.036	9.1	50	bo	bo
	<i>675 kW. <i>See Box</i></i>	2	.00299	3	.036	6.8	30	bo	bo
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	.1009	19	.083	105	80	V.I.R.	Lead covered & arm'd
	GENERAL SERVICE PUMP	1	.01462	7	.052	26	90	bo	bo
	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	1	.08960	19	.052	43	100	bo	bo
	OIL FUEL TRANSFER PUMP	1	.01462	7	.052	26	105	bo	bo
	WINDLASS								
	WINCHES, FORWARD	2	.4064	61	.093	274	110	bo	bo
	WINCHES, AFT	4	.02214	4	.064	51	110	bo	bo
	STEERING GEAR	1	.01462	7	.052	20	60	bo	bo
	WORKSHOP MOTOR								
	VENTILATING FANS								
	<i>forced draught fans</i>	2	.01046	4	.044	18.0	30	bo	bo
	<i>Cooling water pumps</i>	1	.00701	4	.036	17.1	60	bo	bo
	<i>Oil purifiers</i>	3	.00455	4	.029	8.6	80	bo	bo
	<i>Oil fuel heaters</i>	2	.00455	4	.029	10.0	30	bo	bo
	<i>Oil fuel heaters</i>	2	.1009	19	.083	109	80	bo	bo

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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.

Armstrong Whitworth & Co. Electrical Engineers.

Date *8/3/28*

COMPASSES.

Distance between electric generators or motors and standard compass

215 feet

Distance between electric generators or motors and steering compass

220 feet

The nearest cables to the compasses are as follows:—

A cable carrying *.25* Amperes *on the* ~~feet from~~ standard compass *10* feet from steering compass.

A cable carrying *.25* Amperes *10* feet from standard compass *on the* ~~feet from~~ steering compass.

A cable carrying *8.5* Amperes *11* feet from standard compass *7* 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.

SIR W. G. ARMSTRONG, WHITWORTH & CO. LTD.

W. G. Armstrong
DIRECTOR

Builder's Signature.

Date *8-3-1928*

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 eligible in my opinion for notation elec light wireless

It is submitted that
this vessel is eligible for
THE RECORD

Blue Light

W. T. Badger

16/3/28

Total Capacity of Generators *100* Kilowatts

The amount of Fee ... £ *31:10* : When applied for, *8/3/1928*

Travelling Expenses (if any) £ : : When received, *20/3/28*

W. T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Elec Light



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