

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

29 JUL 1936

Date of writing Report 9-7-1936 When handed in at Local Office 21-7-1936 Port of Glasgow
 No. in Survey held at Glenock Date, First Survey 12-3-36 Last Survey 6-7-1936
 Reg. Book. 70776 on the M.V. "ARINIA" (Number of Visits 7)
 Tons { Gross 8025
 Net 4777
 Built at Port Glasgow By whom built Lithgrou Ltd. Yard No. 880 When built 1936
 Owners Anglo Saxon Petroleum Ltd. Port belonging to London
 Electric Light Installation fitted by The Sunderland Engineering Co. Ltd. Contract No. 880 When fitted 1936
 Is the Vessel fitted for carrying Petroleum in bulk yes

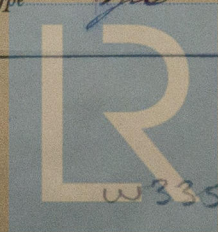
System of Distribution

Two WirePressure of supply for Lighting 110 volts, Heating - 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 yesGenerators, do they comply with the requirements regarding temperature rise yes, are they compound wound yesare 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 inseries with each shunt field yes Have certificates of test results for machines under 100 kw. been submitted andapproved yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing -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 yesPosition of Generators Starboard side of engine room, bottom platform, is the ventilationin way of the generators satisfactory yes are they clear of all inflammable material yes if situated near unprotectedwoodwork 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 yesEarthing, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers and their respective generatorsin metallic contact yes Main Switch Boards, where placed In engine room, near generators onstarboard side of same If the generators and main switchboard are not placed in the same compartment, is each generator provided witha 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 mechanicalinjury and damage from water, steam or oil yes, if situated near unprotected woodwork or other combustible material, state distance of samehorizontally from or vertically above the switchboards - and -, are they constructed wholly of durable, non-ignitable non-absorbentmaterials yes, is all insulation of high dielectric strength and of permanently high insulation resistance yesis it of an approved type yes, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or othernon-hygroscopic insulating material, and the slab similarly insulated from its framework -, is the non-hygroscopic insulating material of an approvedtype -, and is the frame effectively earthed yes Are the fittings as per Rule regarding:— spacing or shielding of live partsyes, accessibility of all parts yes, absence of fuses on back of board yes, temperature rise ofomnibus bars yes, individual fuses to voltmeter, pilot or earth lamp yes, are moving parts of switches alive in the"off" position no are all screws and nuts securing connections effectively locked yes are any fuses fitted on the live side ofswitches no Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switchesD.P. switch, 2 fuses for each generator. Double pole switch & D.P. fuses for outgoing circuit.Are turbine driven generators fitted with emergency trip switch as per rule - Are cupboards or compartments containing switchboards composed offire-resisting material or lined with approved material yes Instruments on main switchboard 4 ammeters 2voltmeters 2 synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Earth lamps. Switches, Circuit Breakers and Fusible Cut-outs,do these comply with the requirements of the Rules yes are the fusible cutouts of an approved type yes have the reversed

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Foundation

W335-0077 (1/2)

current protection devices been tested under working conditions. **Joint Boxes, Section and Distribution Boards,** is the construction, protection, insulation, material, and position of these as per rule. **Cables:** Single, twin, concentric, or multicore. **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load. **Paper Insulated and Varnished Cambric Insulated Cables.** **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. **Support and Protection of Cables,** state how the cables are supported and protected. **Refrigerated Chambers,** are the cables and fittings in accordance with the special requirements. **Joints in Cables,** state if any, and how made, insulated, and protected. **Watertight Glands and Deck Tubes,** are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. **Bushes in Beams and Non-watertight Partitions,** where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed. **Earthing Connections,** state what earthing connections are fitted and their respective sectional areas. **Alternative Lighting,** are the groups of lights in the propelling machinery space arranged as per Rule. **Emergency Supply,** state position and method of control of the emergency supply and how the generator is driven. **Navigation Lamps,** are these separately wired, controlled by separate switch and separate fuses. **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. **Heating and Cooking Appliances,** are they constructed and fitted as per Rule. **Searchlight Lamps,** No. of, whether fixed or portable. **Arc Lamps,** other than searchlight lamps, No. of, are their live parts insulated from the frame or case. **Motors,** are their working parts readily accessible. **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and 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. **Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule.

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	16	110	146	390	Steam & Oil Engine.	Diesel Oil	Above 150° F.		
AUXILIARY										
EMERGENCY										
ROTARY TRANSFORMER										
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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.				
MAIN GENERATOR	1	0.1	19	0.003	146	172	50	Var. & Cambric	L.C.A.	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER } MOTOR GENERATOR										
ENGINE ROOM	1	0.04	19	0.052	36	64	210	Rubber	L.C.A.	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
SHORE CONNECTION. 1	0.1	19	0.003	146	172	130	Var. & Cambric	L.C.A.		
MIDSHIP & FORWARD ACCOM. 1	0.06	19	0.064	32	97	530	Rubber	L.C.A.		
AFT ACCOM. 1	0.0225	7	0.064	32	97	35	Rubber	L.C.A.		
CARGO 1	0.06	19	0.064	32	97	520	Rubber	L.C.A.		
NAVIGATION. 1	0.01	7	0.044	10	31	370	Rubber	L.C.A.		
ACCOMMODATION										
WIRELESS	1	0.0225	7	0.064	38	47	470	Rubber	L.C.A.	
SEARCHLIGHT	1	0.06	19	0.064	32	97	335	Rubber	L.C.A.	
MASTHEAD LIGHT	1	0.0015	1	0.044	0.36	6.1	410	Rubber	L.C.A.	
SIDE LIGHTS	1	0.0015	1	0.044	0.36	6.1	85	Rubber	L.C.	
COMPASS LIGHTS	1	0.0015	1	0.044	0.36	6.1	50	Rubber	L.C.	
POOP LIGHTS										
CARGO LIGHTS										
ARC LAMPS										
HEATERS										
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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
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	1	1	0.0045	7	0.029	11.6	13.2	80	Rubber	L.C. Conduits
DRILLING MACHINE 1	1	0.0045	7	0.029	12.2	13.2	110	Rubber	L.C.A.B.	
GRINDING " 1	1	0.0025	7	0.064	24.5	76	115	Rubber	L.C.A.B.	
LATHE " 1	1	0.0045	7	0.029	9.6	13.2	120	Rubber	L.C.A.B.	
OIL PURIFIER 1	1	0.0045	7	0.029	16.2	13.2	50	Rubber	L.C.A.	
TURNING GEAR 1	1	0.06	19	0.064	83	83	75	Rubber	L.C.A.	
STAND-BY PUMP 1	1	0.0045	7	0.029	14.0	13.2	65	Rubber	L.C.A.B.	

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

P.Pro.
THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Engineers.

Date 10th July 1936

COMPASSES.

Distance between electric generators or motors and standard compass

220 feet.

Distance between electric generators or motors and steering compass

220 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 1.8 Amperes 18 feet from standard compass 10 feet from steering compass.

A cable carrying 0.8 Amperes 18 feet from standard compass 6 feet from steering compass.

A cable carrying 0.6 Amperes 6 feet from standard compass 18 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 no degrees on deviation course in the case of the standard compass, and no degrees on deviation course in the case of the steering compass.

For LITHGOWS LIMITED Campbell Builder's Signature.

Date 14th July 1936

Is this installation a duplicate of a previous case Yes If so, state name of vessel M.V. "MASTRA".

General Remarks (State quality of workmanship, opinions as to class, &c.) The electrical equipment of the vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found good & sound.

21/7/36.

Noted

YRM

20.7.36

Total Capacity of Generators 32. Kilowatts.

The amount of Fee ... £ 23 : 0 : 0 at 8th.

Travelling Expenses (if any) £ : 9/- 22.7.36

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 28 JUL 1936

Assigned SEE ACCOMPANYING MACHINERY REPORT.