

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 21 FEB. 1930 When handed in at Local Office 21 FEB. 1930 Received at London Office 22 FEB 1930

No. in Survey held at Birkenhead Port of LIVERPOOL
Reg. Book. 42296 on the "SULTAN STAR" Date, First Survey Oct 25th Last Survey Feb 9th 1930
(Number of Visits 31)

Built at Birkenhead By whom built Messrs Cammell Laird & Co Yard No. 955 When built 1929/30
Owners Messrs Blue Star Line (1920) Ltd Port belonging to London
Tons { Gross 12700
Net

Electric Light Installation fitted by The Sunderland Forge & Eng Co Ltd Contract No. When fitted 1929/30
Is the Vessel fitted for carrying Petroleum in bulk no

RETAINED

System of Distribution Double line

Pressure of supply for Lighting 220 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

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

Position of Generators Main Engine Room Starboard Side, Are the lubricating arrangements of the generators as per Rule yes

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 Main Engine Room Starboard Side
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 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 Hood

+ Reverse Current Circuit Breakers 3rd Pole Equaliser for main Generators + D.P. Switches
+ Fuses for Feeder Circuits

Instruments on main switchboard 2 ammeters 2 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 Testing Lamps Switches & Fuses.

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.

Cables: Single, twin, concentric, or multicore single & twin are the cables insulated and protected as per Tables IV or V of the Rules yes
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 0.04 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 main cables Lead covered & Braided secured with S.I. clips & Accommodations Lead covered & Braided secured with 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 _____
Joints in Cables, state if any, and how made, insulated, and protected home 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 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 _____ 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
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 _____, how are the cables led _____
 where are the controlling switches situated _____
Searchlight Lamps, No. of one, whether fixed or portable Portable, are their fittings as per Rule yes
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 _____, 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 _____
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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	250	220	1135	350	Steam Engine.		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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.			
MAIN GENERATOR S. (each)	2	1.2	91	.093	1135	1122		Varnishd Canvas	Braided Fall.
EQUALISER CONNECTIONS	1	1.6	91	.093				Varnishd Canvas	Braided Fall.
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.01	7	.044	218	31		V.I.R.	LC&B.
BOILER ROOM	1	.01	7	.044	218	31		V.I.R.	LC&B.
AUXILIARY SWITCHBOARDS	1	.10	19	.083	129	118		V.I.R.	LC&B.
E.R. Auxiliaries	2	.4	37	.083	634	532		V.C.	LC&B.
Refrigerating Mc	1	.003	3	.036	243	12		V.I.R.	LC&B.
navigation	1	.003	3	.036	243	12		V.I.R.	LC&B.
ACCOMMODATION	1	.0225	7	.064	2906	46		V.I.R.	LC&B.
Captain & Officers	1	.01	7	.044	30	31		V.I.R.	LC&B.
Engineers & Crews aft	1	.01	7	.044	37.32	31		V.I.R.	LC&B.
Ch. Accommodations	1	.007	7	.036	14	24		V.I.R.	LC&B.
WIRELESS	1	.06	19	.064	60	83		V.I.R.	LC&B.
SEARCHLIGHT A Cargo	1	.002	3	.029	19	7.8		V.I.R.	LC&B.
MASTHEAD LIGHT	1	.002	3	.029	19	7.8		V.I.R.	LC&B.
SIDE LIGHTS	1	.002	3	.029	19	7.8		V.I.R.	LC&B.
COMPASS LIGHTS	1	.002	3	.029	19	7.8		V.I.R.	LC&B.
POOP LIGHTS	1	.003	3	.036	1.8	12		V.I.R.	LC&B.
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS	2	1	.06	19	.064	7.5	83		V.I.R.	LC&B.
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP	2	1	.0225	7	.064	26	46		V.I.R.	LC&B.
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR	2	1	.10	19	.083	110	118		V.I.R.	LC&B.
(b) MAIN MOTOR	1	1	.007	7	.036	21	24		V.I.R.	LC&B.
WORKSHOP MOTOR										
VENTILATING FANS										
Forced Draught Fan	2	1	.007	7	.036	22	24		V.I.R.	LC&B.
Cooler Fans	3	1	.007	7	.036	11	24		V.I.R.	LC&B.
	10	1	.007	7	.036	8	24		V.I.R.	LC&B.
	3	1	.007	7	.036	20	24		V.I.R.	LC&B.
Ast. Start	2	1	.007	7	.036	4.5	83		V.I.R.	LC&B.
Brine Pump	4	1	.06	19	.064	6.75	12		V.I.R.	LC&B.
Brine Pump	1	1	.003	3	.036	6.75	12		V.I.R.	LC&B.

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.

per The Sunderland Forge & Eng Co Ltd
M. W. Arthur

Electrical Engineers.

Date *7th Feb 1930*

COMPASSES.

Distance between electric generators or motors and standard compass

172 ft

Distance between electric generators or motors and steering compass

168 ft

The nearest cables to the compasses are as follows:—

A cable carrying *2.43* Ampères *8* feet from standard compass *10* feet from steering compass.

A cable carrying *.09* Ampères *8* feet from standard compass *Led into* feet from steering compass.

A cable carrying *.09* Ampères *Led into* feet from standard compass *8* 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 *1/2 W* degrees on *N.E. by N - E.S.E - S.W. - W.S.W.* course, in the case of the standard compass, and *1 E* degrees on *N. - N.N.E - N by W, N.E. by N - E.S.E - S.S.E - S.W. - W by S* course, in the case of the steering compass.

GAMMELL LAIRD AND COMPANY LIMITED.

J. W. Laird

Builder's Signature.

Date

SECRETARY.

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.)

This installation has been satisfactorily fitted on board in accordance with the Rules. It has been examined under working conditions & found satisfactory, & is eligible in my opinion for record of 'Elec Light' in Register book.

Elec. Light.

J. W. Laird 21/2/30

Total Capacity of Generators *500* Kilowatts.

The amount of Fee ... *£44 0 0*

When applied for, *20 FEB 19 1930*

Travelling Expenses (if any) £

When received, *18.3.30*

J. W. Laird

Surveyor to Lloyd's Register of Shipping.

Committee's Minute *LIVERPOOL 21 FEB. 1930*

Assigned *Elec. Light.*

FRI. 15 APR 1930



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Im. 12.28.—Transfer. (The Surveyors are requested not to write on or back on the space for Committee's Minutes.)