

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report 19. 5. 32, 19 When handed in at Local Office 30. 5. 19 32 Port of GLASGOW.

No. in Survey held at GLASGOW AND PORT GLASGOW. Date, First Survey 14. 4. 32 Last Survey 23. 5. 32, 19  
 Reg. Book. (Number of Visits.....7)

40649 on the S.S. "HARMATRIS"

Tons { Gross 5395  
 Net 3195

Built at PORT GLASGOW. By whom built LITHGOWS LTD. Yard No. 853. When built 1932.

Owners WILLIS, S. S. CO. LTD. (J. C. HARRISON LTD MANAGERS) Port belonging to LONDON.

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD Contract No. 853 When fitted 1932

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double Wire

Pressure 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 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 no, 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 Main Engine Room bottom platform starb. side aft. end.

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 on bulkhead adjacent to generator.

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 micamite 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 Double Pole Switch and fuses for generator. Single Pole Switch and Double Pole fuses for each outgoing circuit

Instruments on main switchboard 1 ammeters 1 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 Lamp, Switch

9 fuse on each pole.

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 *Yes*

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *249 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 *Mains. V.I.R Braided Cable run in Gals secured*  
*Conduits. Machinery Spaces Lead Covered Armoured & Braided Cables secured with Gals Iron Clips. Secomm. Lead Covered Cables secured with 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 *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 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 *None made*

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 *Yes*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Yes*

how are the cables led *Yes*

where are the controlling switches situated *Yes*

**Searchlight Lamps,** No. of *2*, whether fixed or portable *Yes*, 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 *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* and *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*

*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 ...	1	14	110	127.3	500	Single Cylinder Enclaved Steam Engine		
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	2	.14780	37	.072	127.3	152	49	V.I.R.	Lead Covered Armoured & Braided
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY MOTOR GENERATOR ...									
ENGINE ROOM ...	2	.01046	7	.044	28	31	30	V.I.R.	Lead Covered Armoured & Braided
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Navigation	2	.00455	7	.029	4.2	18.2	400	V.I.R.	Braided in Gal Conduit
OFFICERS & ENGINEERS ACCOMMODATION ...	2	.01462	7	.052	27.8	37	80	V.I.R.	Braided in Gals Conduit
WIRELESS ...	2	.00701	7	.036	27	24	385	V.I.R.	Braided in Gals Conduit
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	2	.00194	3	.029	3.6	7.8	650	V.I.R.	Braided in Gals Conduit & Gas Pipe up Mast
SIDE LIGHTS ...	2	.00194	3	.029	3.6	7.8	112	V.I.R.	Lead Covered
COMPASS LIGHTS ...	2	.00194	3	.029	1.8	7.8	30	V.I.R.	Lead Covered
POOP LIGHTS ...	2	.00455	7	.029	8.5	18.2	336	V.I.R.	Braided in Gal Conduit
CARGO LIGHTS ...	2	.02214	7	.064	24.7	46	80	V.I.R.	Braided in Gals Conduit
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 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 ...										
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 ...										
Refrig Machine	1	2	.02214	7	.064	44	46	340	V.I.R.	Braided in Gals Conduit
Refrig Circ Water Pump	1	2	.00455	7	.029	9	16.4	38	V.C.	Lead Covered & Braided

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.Pro. THE SUNDERLAND FORGE & ENGINEERING CO. LTD. Electrical Engineers. Date 25/5/32.

*J. G. Shanks*

COMPASSES.

Distance between electric generators or motors and standard compass 124 feet  
 Distance between electric generators or motors and steering compass 114 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 4.2 Ampères 10 feet from standard compass 10 feet from steering compass.  
 A cable carrying 18 Ampères 10 feet from standard compass Led into feet from steering compass.  
 A cable carrying 18 Ampères Led into feet from standard compass 10 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 0 degrees on any course in the case of the standard compass, and 0 degrees on any course in the case of the steering compass.

LITHGOWS LIMITED.

*Murhead*  
 Director

Builder's Signature. Date 27/5/32

Is this installation a duplicate of a previous case 0 If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

This installation has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found to be good and sound.

It is submitted that this vessel is eligible for THE RECORD.

*Elec Light*  
*J. D. 26/5/32*

*U.S.*  
 30/5/32

Total Capacity of Generators 14 Kilowatts.

The amount of Fee ... £ 14 : 0 : 0 When applied for, at 2/4d.  
 Travelling Expenses (if any) £ - : 6 : 6 When received, 26/5/32

*H. Stafford*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 31 MAY 1932

Assigned *Elec Lights*

Im. 9. 90. — Transfer. (The Surveyors are requested not to write on or back the page for Committee's Minute.)



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