

Rpt. 13.

No. 53721

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 13th June 1935 when handed in at Local Office

Received at London Office 19 JUN 1935

Port of Glasgow

No. in Survey held at Port Glasgow and Glasgow Date, First Survey 24. 4. 35 Last Survey 10-6-1935

Reg. Book.

(Number of Visits 5)

89661 on the s.s. "HARPAGON"

Tons { Gross 5719  
Net 3378

Built at Port Glasgow. By whom built Littlejohn, Ltd. Yard No. 874 When built 1935

Owners J. R. Harrison (Mqrs) Port belonging to London

Electric Light Installation fitted by The Sunderland Forge &amp; Eng. Co. Ltd. Contract No. 874 When fitted 1935

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two 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 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 Steam driven set. bottom platform of Eng. Room. Diesel driven set on special flat top 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 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 In Engine Room near to generators.

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 Yes

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 Double pole switch

and fuses for each generator, Double pole change over switch fuses for welding circuit, single pole switch and double pole fuses for outgoing circuits.

Instruments on main switchboard 2 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 Lamps

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 *3.6 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

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 V.I.R. braided in tubing through beam decks, machinery spaces. L.C.A.B. Accommodation L.C. secured by metal 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 *None*

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 *Metallic sheathing & armoured of cables efficiently bonded and earthed by means of metal clips or bonding glands.*  
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 —, whether fixed or portable —, are their fittings as per Rule —

Are 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 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 —



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# 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 ...	ONE	16	110	145.5	500	Steam Engine	-	
AUXILIARY ...	ONE	10	110	91	800	Diesel Engine	Diesel Oil	above 150°F
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 ...	1	.14780	37	.072	145.5	152 ✓	50	V. I. R	L. C. A. B.
EQUALISER CONNECTIONS ...	1	.07592	19	.072	91	97 ✓	44	V. I. R	L. C. A. B.
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER } MOTOR									
TRANSFORMER } GENERATOR...									
ENGINE ROOM... }	1	.01046	7	.044	29.4	31 ✓	40	V. I. R	L. C. A. B.
BOILER ROOM... }									
AUXILIARY SWITCHBOARDS ...	1	.07592	19	.072	91	97 ✓	145	V. I. R	L. C. A. B.
ACCOMMODATION ...									
Engine Room Accommodation	1	.07046	7	.044	20.3	31 ✓	129	V. I. R	Gals. Lubing
Crew Accommodation	1	.00455	7	.029	8.7	18.2 ✓	336	"	"
Navigation	1	.00701	7	.036	8.4	24 ✓	395	"	"
Midship Accommodation	1	.0600	19	.064	75.9	83 ✓	257	"	"
WIRELESS ...	1	.00701	7	.036	15	24 ✓	396	"	"
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.00194	3	.029	.36	7.8 ✓	560	"	" one L. C.
SIDE LIGHTS ...	1	.00194	3	.029	.36	7.8 ✓	80	"	L. C.
COMPASS LIGHTS ...	1	.00194	3	.029	.18	7.8 ✓	40	"	L. C.
PEEP LIGHTS Cargo Aft	1	.00701	7	.036	10.6	24 ✓	224	"	Gals. Lubing
CARGO LIGHTS Main Gun Deck	1	.02212	7	.064	28.4	46 ✓	129	"	"
ARE LAMPS Cargo Fore and Aft	1	.01046	7	.044	14.4	31 ✓	256	"	"
HEATERS ... Saloon	1	.00455	7	.029	13.5	18.2 ✓	160	"	L. C.
Washing Room	1	.00455	7	.029	13.5	18.2 ✓	216	"	"
Smoke Room	1	.00455	7	.029	13.5	18.2 ✓	176	"	"

## 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 ...										
Ref. Machine Motor	1	1	.02840	19	.044	36	53 ✓	304	V. I. R	Gals. Lubing.
" " Escalator	1	1	.01046	7	.044	9	31 ✓	63	V. I. R	" "
Pump										

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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.

P.Pro. THE SUNDERLAND FORGE & ENGR. CO. LTD. Electrical Engineers.

Date 14.6.35.

J.C. Shanks

#### COMPASSES.

Distance between electric generators or motors and standard compass 122 feet

Distance between electric generators or motors and steering compass 118 feet

The nearest cables to the compasses are as follows:—

A cable carrying 18 Ampères led into feet from standard compass led into feet from steering compass.

A cable carrying 8.4 Ampères 10 feet from standard compass 10 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 led degrees on any course in the case of the standard compass, and led degrees on any course in the case of the steering compass.

LITHGOWS LIMITED.

John M. Fuller

Secretary

Builder's Signature.

Date

15/6/35.

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, etc.)

The electrical equipment of this

vessel 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.

17/6/35.

Noted

25/6/35.

Total Capacity of Generators 26 Kilowatts.

The amount of Fee ... £ 20 : 10 : 0

When applied for.

Travelling Expenses (if any) £ - : 6 : 0

When received.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 18 JUN 1935

Assigned SEE ACCOMPANYING MACHINERY REPORT.