

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 FEB 1933

Received at London Office

Date of writing Report 31st Jan 1933. When handed in at Local Office 18.2.1933 Port of GLASGOW.

No. in Survey held at PORT GLASGOW AND GLASGOW. Date, First Survey 29th Nov. Last Survey 31st Jan. 1933
Reg. Book.

76928 on the S.S. "HARDINGHAM"

(Number of Visits.....)

Tons { Gross 5414
Net 3243

Built at PORT GLASGOW. By whom built LITHGOWS LTD. Yard No. 858 When built 1932.

Owners WILLIS, S.S. CO. LTD. (J.B. HARRISON, LTD. Mgrs) Port belonging to LONDON.

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD. Contract No. 858 When fitted 1932/33

Is the Vessel fitted for carrying Petroleum in bulk

No.

System of Distribution

Two - 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

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, starboard side - aft.

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

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

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 generator. Single pole switch and Double pole fuses for each outgoing circuit.

Instruments on main switchboard one ammeters one 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

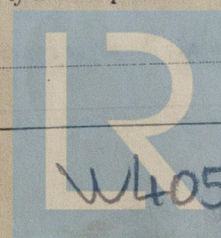
Each lamp with switch and fuse on each pole.

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 wire* 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 *4.0 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 *None.*

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 *Using V.I.R. braided cable in gals. covered tubing.*

Navigation Space. L.C. cables secured with G.I. clips. Accommodation L.C. cables secured with brass clips & V.I.R. in gals. covered tubing
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 *None.*

Joints in Cables, state if any, and how made, insulated, and protected *No joints 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 *None.*

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. — in wheelhouse.*

has each navigation lamp an automatic indicator as per Rule *Yes.*

Secondary Batteries, are they constructed and fitted as per Rule *None.*

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.*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *None.*

—, 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 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 — 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	ONE	14	110	127.3	500	Single Cylinder steam engine. Enclosed type.	—	—
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 ...	ONE	14740	37	0.072	127.3	152.	50	V. I. R.	Lead covered and sheathed
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER ...									
ENGINE ROOM ...									
BOILER ROOM ...	ONE	01046	7	0.044	28	31.	30	V. I. R.	ditto
AUXILIARY SWITCHBOARDS ...	ONE	00455	7	0.029	4.2	18.2	400	V. I. R.	Braided in Gals. tubing.
Navigation.									
ACCOMMODATION ...	ONE	01462	7	0.052	28.6	37.	80	V. I. R.	ditto.
Officers' Mess.									
WIRELESS ...	ONE	00701	7	0.036	21	24	385	V. I. R.	ditto.
SEARCHLIGHT ...	ONE	00194	3	0.029	36	7.8	660.	V. I. R.	ditto
MASTHEAD LIGHT ...	(2)	00194	3	0.029	36	7.8	110	V. I. R.	Lead covered
SIDE LIGHTS ...	ONE	00194	3	0.029	18	7.8	30	V. I. R.	ditto.
COMPASS LIGHTS ...	ONE	00455	7	0.029	8.5	18.2	336	V. I. R.	Braided in Gals. tubing
POOP LIGHTS ...	ONE	02214	7	0.064	24.1	46	80	V. I. R.	ditto
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 ...										
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 ...										
Refrigerating Motor.	ONE	ONE	02214	7	0.064	44	46	340	V. I. R.	Braided in Gals. tubing.
Refig. Circulating Water Pump.	ONE	ONE	00455	7	0.029	9	16.4	34	V. I. R.	Lead covered and braided.

W405-00981212

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. LD. Electrical Engineers.

Date 3rd Feb. 1933.

W Park manager

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 10 degrees on any course in the case of the standard

compass, and 10 degrees on any course in the case of the steering compass.

LITHGOWS LIMITED.

John McFulloch

Builder's Signature.

Date 7/2/33

Is this installation a duplicate of a previous case Yes. If so, state name of vessel ss. "HARLINGEN"

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

Blue light

22/2/33

18/2/33.

Total Capacity of Generators 14 Kilowatts.

The amount of Fee ... £ 14 : 0 : 0 3. 2. 1933.

Travelling Expenses (if any) £ : 6/6 : 4. 2. 1933.

A. Aafford
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 21 FEB 1933

Assigned Electric Light

Im. 1000.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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