

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. (Number of Visits.....)

76928 on the S.S. "HARDINGHAM" 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.C. 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 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, 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, 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 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 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.

Earth lamps 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.

RETAIN

RETAIN

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 Main V.I.R. braided cable in gals. covered tubing, Machinery 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

Lighting Conductors, where lighting 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	1273	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.	Rate.				
MAIN GENERATOR	ONE	14780	37	0.072	1273	152.	50	V. I. R.	Lead covered and braided	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER										
MOTOR GENERATOR										
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										
Officers' Mess.	ONE	01462	7	0.052	28.6	37.	80	V. I. R.	ditto	
WIRELESS	ONE	00701	7	0.036	21	24	385	V. I. R.	ditto	
SEARCHLIGHT										
MASTHEAD LIGHT	ONE	00194	3	0.029	36	7.8	660.	V. I. R.	ditto	
SIDE LIGHTS	(2)	ONE	00194	3	0.029	36	7.8	110	V. I. R.	Lead covered
COMPASS LIGHTS	ONE	00194	3	0.029	18	7.8	30	V. I. R.	ditto	
POOP LIGHTS	ONE	00455	7	0.029	8.5	18.2	336	V. I. R.	Braided in Gals. tubing	
CARGO LIGHTS	ONE	02214	7	0.064	24.1	46	80	V. I. R.	ditto	
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.	Rate.			
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
Refrig. Circulating Water Pump.	ONE	ONE	00455	7	0.029	9	16.4	38	V. I. R.	Lead covered and 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. LD. Electrical Engineers. Date 3rd Feb. 1933.

H 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 *no* degrees on *any* course in the case of the standard compass, and *no* degrees on *any.* course in the case of the steering compass.

LITHGOWS LIMITED.

John McFulloch Secretary 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* : *03.2.1933.* When applied for,
 Travelling Expenses (if any) £ *6/6* : *4.2.1933.* When received,

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

Committee's Minute **GLASGOW 21 FEB 1933**

Assigned *Electric Light*

Im. 100. — Transfer. (The Surveyors are requested not to write on or behind the space for Committee's Minute.)

