

Rpt. 13.

No. 53464

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 17 MAY 1933

Date of writing Report 5-5-1933 When handed in at Local Office 12.5.1933 Port of GLASGOW.

No. in Survey held at PORT GLASGOW & GLASGOW Date, First Survey 28.2.33 Last Survey 26-4-1933  
Reg. Book. 76938 on the s.s. "HARBLEDOWN" (Number of Visits 9)Built at PORT GLASGOW. By whom built LITHGOW & LTD. Yard No. 861 When built 1933  
Owners NATIONAL STEAMSHIP CO. LTD. J. & C. HARRISON. LTD. (MANAGERS) Port belonging to LONDON.Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD. Contract No. 861 When fitted 1933  
Is the Vessel fitted for carrying Petroleum in bulk No.

## System of Distribution

400 volt. ✓

## 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

-

, 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 - off set.

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

-

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 generator, single pole pilot lamps and double pole fuses for each outgoing circuit.

Instruments on main switchboard

one

ammeter

one

voltmeter

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

Cord lamps

with switch and fuse one 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 4.9 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 Mains, V.I.R. braided in gal. covered tubing  
Work 15 ft. L.C. cables secured with G.I. clip. Acc. L.C. cables secured with brass clips & V.I.R. in gal. 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 —  
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 — 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 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 —

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 —

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 —

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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.			Fuel Used.	Flash Point of Fuel.
MAIN	ONE	14	110	127.3	500.	Single Cylinder Enclosed Type 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	ONE	14750	37	.072	127.3	162	50	V.I.R.	Lead Covered & Braided.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	ONE	01046	7	.044	28	31	30	V.I.R.	Do.
BOILER ROOM									
AUXILIARY SWITCHBOARDS	ONE	00455	7	.029	142	18.2	400	V.I.R.	Braided in Gal. Tubing.
NAVIGATION									
ACCOMMODATION	ONE	01462	7	.052	28.6	37	80	V.I.R.	Do.
OFFICERS & ENGINEERS									
WIRELESS	ONE	00701	7	.036	21	24	385	V.I.R.	Do.
SEARCHLIGHT	ONE	00194	3	.029	36	7.8	650	V.I.R.	Do
MASTHEAD LIGHT	(2)	00194	3	.029	36	7.8	110	V.I.R.	Lead Covered
SIDE LIGHTS	ONE	00194	3	.029	18	7.8	30	V.I.R.	Do.
COMPASS LIGHTS	ONE	00455	7	.029	8.5	18.2	336	V.I.R.	Braided in Gal. Tubing.
POOP LIGHTS	ONE	02214	7	.064	24.1	46	80	V.I.R.	Do.
CARGO LIGHTS									
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										
REFRIGERATING MOTOR	ONE	ONE	02214	7	.064	44	46	340	V.I.R.	Braided in Gal. Tubing.
REFRIG. CIRCULATING PUMP	ONE	ONE	00455	7	.029	9	16.4	38	V.C.	Lead Covered & Braided.
MOTOR										

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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 & ENG. CO. LTD.

*W. Park*

Electrical Engineers.

Date 8.5.33.

#### COMPASSES.

Distance between electric generators or motors and standard compass 124 ft.

Distance between electric generators or motors and steering compass 114 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 4.2 Amperes 10 feet from standard compass 10 feet from steering compass.

A cable carrying .14 Amperes 10 feet from standard compass 10 feet from steering compass.

A cable carrying .14 Amperes 10 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 M. Fuller*

Secretary

Builder's Signature.

Date

11/5/33

Is this installation a duplicate of a previous case Yes. If so, state name of vessel S.S. HARDINGHAM. ✓

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.

*12/5/33.*

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

Elec. Light.

*C. W. F.* 19.5.33

Total Capacity of Generators 14 Kilowatts.

The amount of Fee ... £ 14 : -

When applied for,

at 4/6.

Travelling Expenses (if any) £

6/6

When received,

10.5.1933.

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

Committee's Minute GLASGOW 16 MAY 1933

Assigned

*Elec. Light*