

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

- 3 MAR 1943

Received at London Office.....

Date of writing Report... 24<sup>th</sup> FEB. 1943 When handed in at Local Office... 24<sup>th</sup> FEB. 1943 Port of... GLASGOW

No. in Survey held at... PORT GLASGOW Date, First Survey... 9<sup>th</sup> DEC. 1942 Last Survey... 12<sup>th</sup> FEB. 1943  
Reg. Book. (Number of Visits... 11)

88736 on the... TRIONA Tons { Gross..... Net.....

Built at... PORT GLASGOW By whom built... LITHGOWS LTD Yard No. 974 When built... 1943

Owners... BRITISH PHOSPHATE COMMISSIONERS Port belonging to... LONDON

Electrical Installation fitted by... MESSRS. SUNDERLAND FORGE & ENGINEERING CO. LTD Contract No. 974 When fitted... 1943

Is vessel fitted for carrying Petroleum in bulk... — Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. — Sub.Sig. —

Have plans been submitted and approved... Yes System of Distribution... Two wire Voltage of supply for Lighting... 220

Heating... — Power... 220 Direct or Alternating Current, Lighting... D.C. Power... D.C. If Alternating Current state periodicity... — Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off... Yes Are turbine emergency governors fitted with a

trip switch as per Rule... — Generators, are they compound wound... Yes, are they level compounded under working conditions... Yes,

if not compound wound state distance between generators... — and from switchboard... — Where more than one generator is fitted are they

arranged to run in parallel... Yes, are shunt field regulators provided... Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing... — Have certificates of

test for machines under 100 kw. been supplied... Yes and the results found as per rule... Yes Are the lubricating arrangements and the construction

of the generators as per rule... Yes Position of Generators... In engine-room

is the ventilation in way of generators satisfactory... Yes are they clear of inflammable material... Yes, if situated

near unprotected combustible material state distance from same horizontally... — and vertically... —, are the generators protected from mechanical

injury and damage from water, steam and oil... Yes, are the bedplates and frames earthed... Yes and the prime movers and generators in metallic

contact... Yes Switchboards, where are main switchboards placed... In engine-room near generators

are they in accessible positions, free from inflammable gases and acid fumes... Yes, are they protected from mechanical injury and damage from water, steam

and oil... Yes, if situated near unprotected combustible material state distance from same horizontally... — and vertically... —, what insulation

material is used for the panels... Stidamyo, if of synthetic insulating material is it an Approved Type... Yes, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule... — Is the frame effectually earthed... Yes

Is the construction as per Rule... Yes, including accessibility of parts... Yes, absence of fuses on the back of the board... Yes, individual fuses

to pilot and earth lamps, voltmeters, etc... Yes locking of screws and nuts... Yes, labelling of apparatus and fuses... Yes, fuses on the "dead"

side of switches... Yes Description of Main Switchgear for each generator and arrangement of equaliser switches... —

150 Amp. D.P. circuit breaker fitted with 9/16" reverse current and undervoltage trips and time lags.

and for each outgoing circuit... 100 amp; 60 amp; 30 amp D.P. change over switches with fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... — Instruments on main switchboard... 3

ammeters... 3 voltmeters... — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection... Yes Earth Testing, state means provided... Earth lamps

Switches, Circuit Breakers and Fuses, are they as per Rule... Yes, are the fuses an approved type... Yes, are all fuses labelled as

per Rule... Yes If circuit breakers are provided for the generators, at what overload current did they open when tested... Full load, are the reversed current

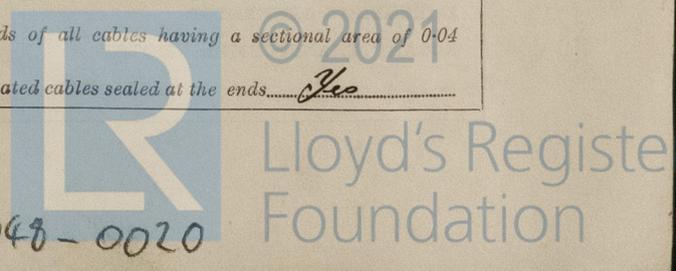
protection devices connected on the pole opposite to the equaliser connection... Yes, have they been tested under working conditions, and at what current

did they operate... 2.2 Amps. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule... Yes

Cables, are they insulated and protected as per the appropriate Tables of the Rules... Yes, if otherwise than as per Rule are they of an approved type... Yes,

state maximum fall of pressure between bus bars and any point under maximum load... 4.2 Yds, are the ends of all cables having a sectional area of 0.04

square inch and above provided with soldering sockets... Yes Are paper insulated and varnished cambric insulated cables sealed at the ends... Yes



with insulating compound Yes or waterproof insulating tape Yes. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage Yes, are cables laid under machines or floorplates Yes, if so, are they adequately protected Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes <sup>+</sup> run in conduit Yes. State how the cables are supported and protected.

**MAINS:** V.I.R. in Steel pipe  
**MACHINERY SPACE:** L.C. clipped to steel  
**ACCOMMODATION:** L.C. clipped to wood

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes. Refrigerated chambers, are the cables and fittings as per Rule Yes. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed Yes and with what material Fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position \_\_\_\_\_ and method of control \_\_\_\_\_.

Navigation Lamps, are they separately wired Yes controlled by separate double pole switches Yes and fuses Yes. Are the switches and fuses in a position accessible only to the officers on watch Yes, is an automatic indicator fitted Yes. Secondary Batteries, are they constructed and fitted as per Rule \_\_\_\_\_, are they adequately ventilated \_\_\_\_\_ what is the battery capacity in ampere hours \_\_\_\_\_.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present \_\_\_\_\_, if so, how are they protected \_\_\_\_\_.

and where are the controlling switches fitted \_\_\_\_\_, are all fittings suitably ventilated Yes, are all fittings and accessories constructed and installed as per Rule Yes. Searchlight Lamps, No. of \_\_\_\_\_, whether fixed or portable \_\_\_\_\_, are their fittings as per Rule \_\_\_\_\_.

Heating and Cooking, is the general construction as per Rule \_\_\_\_\_, are the frames effectually earthed \_\_\_\_\_, are heaters in the accommodation of the convection type \_\_\_\_\_. Motors, are all motors constructed and installed as per Rule Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil Yes, if situated near unprotected combustible material state minimum distance from same horizontally \_\_\_\_\_ and vertically \_\_\_\_\_.

Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment \_\_\_\_\_ Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing \_\_\_\_\_ Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule \_\_\_\_\_.

Control Gear and Resistances, are they constructed and fitted as per Rule Yes. Lightning Conductors, where required are they fitted as per Rule \_\_\_\_\_. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with \_\_\_\_\_, are all fuses of the cartridge type \_\_\_\_\_ are they of an approved type \_\_\_\_\_.

Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships \_\_\_\_\_ Are the cables lead covered as per Rule \_\_\_\_\_ Spare Gear, if the vessel is for open sea service have spares been provided as per Rule Yes, are they suitably stored in dry situations Yes. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory 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	3	33	220	150	640	STEAM ENGINE		
EMERGENCY								
ROTARY TRANSFORMER								

**GENERATOR CABLES.**

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	33	1	19/072	150	157	90	V.C.	L.C.
" " EQUALISER			7/064		75	45	V.C.	L.C.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

**MAIN DISTRIBUTION CABLES.**

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
SALOON SECTION BOARD	1	19/064	49	83	328	V.E.	IN STEEL PIPE.
REFRIGERATOR AUXILIARIES S.B.	1	19/064	38.8	83	364	V.E.	IN STEEL PIPE.
ENGINEERS LIGHTING SECTION BOARD	1	7/044	22.2	31	142	V.I.R.	IN STEEL PIPE.
WORKSHOP SECTION BOARD	1	7/064	26	31	120	V.E.	L.C.

**LIGHTING AND HEATING, ETC., CABLES.**

DESCRIPTION.	No.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS	1	7/044	15	31	412	V.I.R. IN STEEL PIPE.
NAVIGATION LIGHTS	1	7/036	8	24	92	V.I.R. IN STEEL PIPE.
LIGHTING AND HEATING						
FORD. CARGO LTG. D.B.	1	7/044	13.7	31	320	V.I.R. IN STEEL PIPE.
SALOON LTG. D.B.	1	7/036	9.8	24	12	RUBBER L.C.
LOWER BRIDGE DECK LTG. D.B.	1	7/036	13.5	24	28	V.I.R. IN STEEL PIPE.
NAVIGATION	1	7/036	8	24	92	V.I.R. IN STEEL PIPE.

**MOTOR CABLES.**

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
REFRIGERATOR COMPRESSOR	1	27	19/083	109	118	364	V.E. IN STEEL PIPE.
REFRIGERATOR FANS	2	.75	1/044	4	5	30	RUBBER L.C.
REFRIGERATOR PUMPS	2	3.5	7/036	16	24	30	RUBBER L.C.
REFRIGERATOR WATER PUMP	1	3.5	7/036	16	24	85	RUBBER L.C.
WORKSHOP LATHE	1	1.0	1/064	4.5	10	40	RUBBER L.C.
WORKSHOP DRILL	1	1.0	1/064	4.5	10	35	RUBBER L.C.
WORKSHOP GRINDER	1	3	7/036	13.5	24	30	RUBBER L.C.

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.  
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.  
 The foregoing is a correct description.

P.Pro. THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Engineers.

Date 25.2.43

*J.C. Shanks*

COMPASSES.

Minimum distance between electric generators or motors and standard compass 40 feet.

Minimum distance between electric generators or motors and steering compass 35 feet.

The nearest cables to the compasses are as follows:—

A cable carrying .1 Ampères led into from standard compass led into from steering compass.

A cable carrying 8 Ampères 6 feet from standard compass 6 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 nil degrees on any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

LITHGOWS LIMITED.

Builder's Signature.

Date.

1<sup>st</sup> March 43

*for J. Whyte.*

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

Plans. Are approved plans forwarded herewith No If not, state date of approval 11/12/42

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith Yes.

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) \_\_\_\_\_

*The electrical equipment of this vessel has been fitted on board under special survey, tested under working conditions and found satisfactory. The materials and workmanship are good.*

*Noted  
L.P.  
5/3/43*

*Exb  
2/3/43*

Total Capacity of Generators 99 Kilowatts.

The amount of Fee ... £ 32 : 8 : \_\_\_\_\_  
 Travelling Expenses (if any) £ 1 : 2 : \_\_\_\_\_

When applied for  
*ai-Smk*

When received.  
.....19.....

*J.M. Gardiner*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 2 MAR 1943

Assigned See Greenock Rpt. No 22226

5m.4.33.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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