

No. 87874

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

21 DEC 1931

Writing Report 19 When handed in at Local Office 11/12/103 / Port of NEWCASTLE ON TYNE

Survey held at NEWCASTLE ON TYNE Date, First Survey 10<sup>th</sup> March/31 Last Survey 1<sup>st</sup> Dec 1931  
(Number of Visits 8)

No. and Book 4 on the M.V. CARDIUM. Tons { Gross 8236 Net 4828

at NEWCASTLE ON TYNE By whom built SWAN HUNTERS W.R. LTD Yard No. 1455 When built 1931

Port belonging to ANGLO-SAXON PETROLEUM CO LTD. LONDON

Electric Light Installation fitted by SWAN HUNTERS W.R. LTD Contract No. 1455 When fitted 1931

Vessel fitted for carrying Petroleum in bulk YES.

System of Distribution Double Wire 110 volts, Heating - volts, Power 110 volts.

Working pressure of supply for Lighting 110 volts, Heating - volts, Power 110 volts.

Hydraulic test or Alternating Current, Lighting Direct Power

Alternating current system, state frequency of periods per second -

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

Over compounded 5 per cent. Yes, if not compound wound state distance between each generator -

If more than one generator is fitted are they arranged to run in parallel No, is an adjustable regulating resistance fitted in

with each shunt field Yes

All terminals accessible, clearly marked, and furnished with sockets Yes, are they so spaced or shielded that they cannot be accidentally earthed,

circuited, or touched Yes Are the lubricating arrangements of the generators as per Rule Yes

Ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yes

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

Their axes of rotation fore and aft Yes are the prime movers and

thing, are the bedplates and frames of the generating plant efficiently earthed Yes

respective generators in metallic contact Yes

Main Switch Boards, where placed Engine Room, Starboard Side.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

case 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

they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotected

work or other combustible material, state distance of same horizontally from or vertically above the switchboards - and -

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

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

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 D.P. of Circuit

breakers for each Generator. D.P. Change-over switches and 2ed type fuses for each

outgoing circuit

Instruments on main switchboard 2 ammeters 2 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

connected to earth through switches and fuses.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes

Main 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 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 2.5 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 L.C. in Accommodation. L.C. & A. in galvanized steel piping under Fore & Aft gangways. L.C. & A. clipped up in machinery spaces.  
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 Yes

**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 —  
—, 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 Yes. In Pump Room in gas-tight fittings fitted in recess only accessible from deck. In galvanized steel piping, how are the cables led —, where are the controlling switches situated In midship accommodation

**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 —, 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 Yes

**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 Yes.

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office Yes.

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	2	16	110	145	390	1- P.C. Steam Engine 1- Kromhout Oil 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	1	14780	37	.072	145	152	30	V.I.R.	L.C. & A.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR	1	.06	19	.064	70	83	30	do	do
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Shore supply	1	1009	19	.083	100	118	150	do	do
Midship & Fore	1	.06	19	.064	38	83	560	do	do
Navigation	1	.01046	7	.044	5	31	600	do	do
ACCOMMODATION	1	.02214	7	.064	33	46	120	do	do
Cargo Cluster	1	.00701	7	.036	13	24	120	do	do
WIRELESS	1	.02214	7	.064	15	46	230	do	do
SEARCHLIGHT	1	.00194	3	.029	3	7.8	400	do	do
MASTHEAD LIGHT	1	.00194	3	.029	3	7.8	90	do	L.C. & A.
SIDE LIGHTS	1	.00194	3	.029	1	7.8	80	do	L.C.
COMPASS LIGHTS	1	.00194	3	.029	3	7.8	740	do	L.C. & A.
CARGO LIGHTS	1	.00194	3	.029	2.1	7.8	60	do	L.C.
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	2	1	1009	19	.083	96	118	80	V.I.R.	L.C. & A.
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										
Oil Purifier motor	1	1	.01046	7	.044	28	31	180	do	do
Drill	1	1	.00455	7	.029	17	18.2	65	do	do
Lathe	1	1	.00455	7	.029	12	18.2	72	do	do
Grinder	1	1	.01046	7	.044	26	31	110	do	do

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.

FOR SWAN, HUNTER, & WIGHAM RICHARDSON, LTD

Electrical Engineers.

Date 4<sup>th</sup> Dec 1931

COMPASSES.

Distance between electric generators or motors and standard compass 215 feet Approx.

Distance between electric generators or motors and steering compass 212 do do.

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères inside feet from standard compass 7 feet from steering compass.

A cable carrying 1 Ampères 7 feet from standard compass inside feet from steering compass.

A cable carrying 2 Ampères 6 feet from standard compass 8 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.

G. A. Steuter Builder's Signature.

Date 4<sup>th</sup> Dec 1931

Is this installation a duplicate of a previous case Yes If so, state name of vessel M.V. CARDITA.

General Remarks (State quality of workmanship, opinions as to class, &c.) This installation has been fitted

on board under special survey and has been 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 complies with THE RULES.

Dec. Light  
J. M. 22/12/31

Total Capacity of Generators 32 Kilowatts.

The amount of Fee ... £ 23 : - : When applied for, 5/12/31

Travelling Expenses (if any) £ : : When received, 23/12/31

R. C. Clayton.  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE, 22 DEC 1931

Assigned Elec. Light (See F. C. Rpt.)

Im. 11.24.—Transfer. (The Surveys are requested not to write on or below the space for Committee's Minute.)

