

29 SEP 1943

Rpt. 13.

No. 52120.

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report.....19..... When handed in at Local Office.....9 SEP 1943.....19..... Port of.....HULL.....

No. in Survey held at.....Hull..... Date, First Survey.....30. 4. 43...... Last Survey.....24. 8. 1943.....  
Reg. Book..... (Number of Visits.....4.....)

16325 on the....."EMPIRE SWAIL" (Tug)..... Tons {Gross.....274.....  
Net.....      .....

Built at.....Sally..... By whom built.....Robinson & Sons Ltd..... Yard No.....1268..... When built.....1943.....

Owners.....The Ministry of War Transport..... Port belonging to.....

Electrical Installation fitted by.....Wm Broadway & Son..... Contract No..... When fitted.....1943.....

Is vessel fitted for carrying Petroleum in bulk.....no..... Is vessel equipped with D.F.....no..... E.S.D.....no..... Gy.C.....no..... Sub.Sig.....no.....

Have plans been submitted and approved.....Yes..... System of Distribution.....two wire..... Voltage of supply for Lighting.....110.....

Heating..... Power.....Yes..... Direct or Alternating Current, Lighting..... Power.....AC..... 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....., 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.....Engine room starboard side on platform.....

....., 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.....Engine room starboard side near generator......

..... 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....."Sindamp"....., 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.....Double pole quick

break knife switches & double pole fuses......

and for each outgoing circuit.....Double pole quick break knife switches & double pole fuses......

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

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

equaliser connection..... Earth Testing, state means provided.....Lamps coupled to earth via switches & fuses.....

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....., are the reversed current

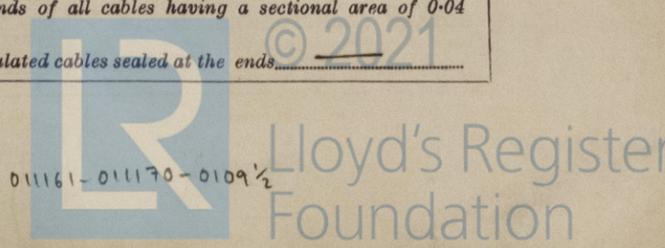
protection devices connected on the pole opposite to the equaliser connection....., have they been tested under working conditions, and at what current

did they operate..... 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.....

state maximum fall of pressure between bus bars and any point under maximum load.....3V....., 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.....



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with insulating compound \_\_\_\_\_ or waterproof insulating tape \_\_\_\_\_ 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 no, if so, are they adequately protected \_\_\_\_\_ Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit \_\_\_\_\_ State how the cables are supported and protected In machinery spaces etc LC+A clipped to perforated steel trays or direct to steel work, in accommodation etc LC clipped to wooden battens or direct to woodwork.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes Refrigerated chambers, are the cables and fittings as per Rule \_\_\_\_\_

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 effectually bushed Yes and with what material Lead Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule \_\_\_\_\_ 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 no 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 no, if so, how are they protected \_\_\_\_\_ and where are the controlling switches fitted \_\_\_\_\_, are all fittings suitably ventilated \_\_\_\_\_, are all fittings and accessories constructed and installed as per Rule \_\_\_\_\_ 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 no 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	1	6KW	110	54.5	500	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	6	1	19/052	54.5	64	24	VIR	LC
" " EQUALISEE								
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 ... DG	1	7/064	max 22.5	46	20'	VIR	LC

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS	1	7/036	5	24	160'	VIR	LC+A
NAVIGATION LIGHTS	1	7/029	3	15	160'	"	"
LIGHTING AND HEATING <u>Accommodation</u> <u>Engine &amp; boiler room direct from main switchboard.</u>	1	7/036	10	24	140'	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
Refrigerator	1	1/2	1	3/029	4	5	70'	VIR	LC
Vent fan 5"	1	3/4	1	3/036	5	10	60'	"	"

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.

W. BROADY & SON LTD  
ENGINEERS,  
HULL.

Electrical Engineers.

Date 25. 8. 43.

COMPASSES.

Minimum distance between electric generators or motors and standard compass..... 61'

Minimum distance between electric generators or motors and steering compass..... 56'

The nearest cables to the compasses are as follows:—

A cable carrying 65 Ampères inside feet from standard compass 5 feet from steering compass.

A cable carrying 25 Ampères 5 feet from standard compass 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 every course in the case of the standard compass, and Nil degrees on every course in the case of the steering compass.

FOR COCHRANE & SONS, LTD.

Builder's Signature: W. Gray Date: DIRECTOR

Is this installation a duplicate of a previous case Yes If so, state name of vessel EMPIRE SARA

Plans. Are approved plans forwarded herewith No If not, state date of approval 6.4.42

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

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

The electrical equipment of this vessel was installed under special survey and in accordance with the approved plans and with the specification. The materials used are of good quality and the workmanship is good. On completion the equipment was operated under working conditions with satisfactory results and the insulation resistance of all circuits and apparatus was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Noted  
14/9/43

Total Capacity of Generators 6 Kilowatts.

The amount of Fee ... £ 3 : 0 :  
25% for Spec 15.0  
Travelling Expenses (if any) £ : :  
When applied for, 2 SEP 1943  
When received, 4.9.1943

W. L. Cornell  
Surveyor to Lloyd's Register of Shipping.

FRI. 17 SEP 1943

Committee's Minute

Assigned see minute on I.O. Rpt.

5m. 4.38.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

