

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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Date of writing Report... 31<sup>st</sup> Dec 43 When handed in at Local Office... 17.1.1944 Port of... Glasgow

No. in Survey held at... Glasgow Date, First Survey... 22 Oct 43 Last Survey... 24<sup>th</sup> Dec 1943 (Number of Visits... 13)

Reg. Book. 37389 on the S.S. EMPIRE "HARVEST" Tons { Gross... 814 Net... 332

Built at... Glasgow By whom built... A & J. Inglis LTD. Yard No. 1225 P When built... 1943

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

Electrical Installation fitted by... W. Muir Goodfellow & Co. L<sup>td</sup>. Contract No. 1225 P When fitted... 1943

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

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

Heating... Power... 110 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... No, 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... 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... Sinduro, 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... D.P. Switch and Fuses

and for each outgoing circuit... D.P. Switch and Fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... — Instruments on main switchboard... 2

ammeters... 2 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... 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... —, 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... W.E., state maximum fall of pressure between bus bars and any point under maximum load... 3 volts, 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. Main L.C. & Pyrotecax. Machinery space Pyrotecax & L.C.A. Cables to fwd. pump room and forecstle Pyrotecax, clipped. Accommodation L.C. clipped.

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. 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. Yes, if so, how are they protected. Flameproof fittings installed in pump room in accordance with rule requirements. and where are the controlling switches fitted. in accommodation, 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 \_\_\_\_\_. and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil \_\_\_\_\_. 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. Yes, are all fuses of the cartridge type. Yes are they of an approved type. Yes. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. Yes. 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 \_\_\_\_\_. 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	2	6 1/2	110	59.5	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 1/2	1	19/052	59.5	64	44	Rubber	L.C.A.
" " EQUALISER								
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							

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/036	10	24	114	Rubber	L.C.B.
NAVIGATION LIGHTS	1	3/036	1.8	10	144	"	L.C.
LIGHTING AND HEATING							
ENGINE ROOM D.B.	1	2.0145	11	57	45	Pyrotecax Cable	
ACCOMMODATION D.B.	1	7.052	14.2	37	159	Rubber	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
DOMESTIC REFRIGERATOR	1	1	1	2.0145	11	57	225 Pyrotecax Cable

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.

For W. Muir Goodfellow & Coy Ltd

*W. Muir Goodfellow & Coy Ltd*

Electrical Engineers.

Date 7/1/44

COMPASSES.

Minimum distance between electric generators or motors and standard compass 100 feet

Minimum distance between electric generators or motors and steering compass 90 feet

The nearest cables to the compasses are as follows:—

A cable carrying .2 Ampères led into feet from standard compass led into feet from steering compass.

A cable carrying 6 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.

A. & J. INGLIS LIMITED.

*W. S. Inglis*

Builder's Signature.

Date 10-1-44

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

Plans. Are approved plans forwarded herewith If not, state date of approval 23<sup>rd</sup> Dec. 1943

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. All the requirements of the approved plans and Ministry of War Transport Specifications have been carried out. The materials and workmanship are good.

*Noted  
L.S.  
8/2/44*

Total Capacity of Generators 13 Kilowatts.

The amount of Fee ... £ 13 : 0 :  
 M.O.W.T. SPEC. 3 - 5 :  
 Travelling Expenses (if any) £ : :  
 When applied for, 1 FEB 1944  
 When received, 19

*J. A. Wright, S.S. Friday*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 1 FEB 1944

Assigned

5m.4.30.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)