

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

170 APR 1942

Received at London Office.....

Date of writing Report 14 April 1942 When handed in at Local Office 7 APR 1942 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 17th Dec '41 Last Survey 14 April 1942  
Reg. Book. Suppt. and Walstead. (Number of Vicks.....)

36428 on the S.S. "EMPIRE MARVELL" Tons { Gross... 9,812  
Net... 4,253

Built at Sunderland By whom built Sir J. Laing & Sons, Ltd. Yard No. 740 When built 1942

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Proj. Eng. Co. Ltd. Contract No. 740 When fitted 1942

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

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

Heating 110 Power 110 Direct or Alternating Current, Lighting Yes Power Yes 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 Yes Generators, are they compound wound Yes, are they level compounded under working conditions Yes

not compound wound state distance between generators Yes and from switchboard Yes 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 Yes 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 on raised platform

aft, 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 Yes and vertically Yes, 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 port side aft

main generating sets

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 Yes and vertically Yes, what insulation

material is used for the panels "Economy Sinterimp", 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 Yes 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 switch and double pole fuse.

and for each outgoing circuit Double pole double throw quick break knife

switch and double pole fuse.

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

ammeters Two voltmeters Two 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 E lamps coupled to E through two 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 Yes, 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

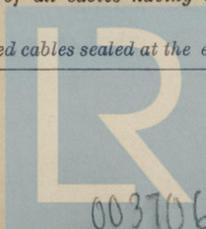
did they operate Yes Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes

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 4.44, 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

Yes



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14/4/42

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. No, if so, are they adequately protected. Yes Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. Yes State how the cables are supported and protected. L.C.A.B. cables run in hardwood cleats on underside of fore-and-aft gangway. L.C.A.B. cables run in pipe with expansion joints on plate for emergency main. L.C.A.B. cables clipped to surface or on tray in machinery spaces. L.C. cables clipped to wood grounds or to surface in accommodation.

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 effectually bushed. Yes and with what material. Lead or steel Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position. Yes and method of control. Yes

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. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. Yes

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. "Wigan" flameproof fittings installed in stokehold space

and where are the controlling switches fitted. In officers' accommodation, are all fittings suitably ventilated. Yes are all fittings and accessories constructed and installed as per Rule. Yes Searchlight Lamps, No. of. Yes, whether fixed or portable. Yes, are their fittings as per Rule. Yes Heating and Cooking, is the general construction as per Rule. Yes

are the frames effectually earthed. Yes, are heaters in the accommodation of the convection type. Yes 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. Yes and vertically. Yes 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. Yes

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. Yes Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. Yes Control Gear and Resistances, are they constructed and fitted as per Rule. Yes Lightning Conductors, where required are they fitted as per Rule. Yes 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. Yes 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	2	25	110	227	685	Single cylinder steam engines		
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 GENERATORS	2 x 25	1	37/083	227	296	36139	V.C.	L.C.A.B.
" EQUALISER								
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS. No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
			In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
Mid. S.B. Main Feeds	1	37/072	142	246	750	V.C.	L.C.A.B.
Mid. S.B. Aux. Feeds	1	37/072	142	246	820	do	do
Aft S.B. Feeds	1	19/064	83	135	170	do	do
Engine Room Aux. S.B. Feeds	1	7/064	49	75	60	do	do

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	35	75	100	V.C.	L.C.
NAVIGATION LIGHTS	1	7/044	4	31	110	V.I.R.	do
LIGHTING AND HEATING	Aux. feed to nav. log. ab fitted from bridge log. ab						
Bridge log. ab	1	7/044	22	31	15	V.I.R.	L.C.
Mid. S.B. Cargo ab	1	7/044	12	31	15	do	do
Upper Bridge log. ab	1	7/044	13	31	75	do	do
Bridge log. ab	1	7/044	13	31	110	do	do
Lower Prop. log. ab	1	7/044	20	31	30	do	do
Lower Prop. log. ab	1	7/044	21	31	75	do	do
Aft Cargo log. ab	1	7/044	2	31	30	do	do
Upper Prop. log. ab	1	7/044	13	31	30	do	do
Upper Prop. log. ab	1	7/044	9	31	110	do	do
Helipad	1	7/044	18	31	90	do	do
Engine Room log. ab	1	7/044	29	31	30	do	do

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.
			No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Vent. Fan (Off E.R. Aux. S.B.)	1	4 3/4	1	7/064	43	75	230	V.C.	L.C.A.B.
Vent. Fan (Off Mid. S.B.)	1	4 3/4	1	7/064	43	75	100	do	L.C.
E.S.D. Pump (Off E.R. Aux. S.B.)	1		1	7/064	6	31	70	V.I.R.	L.C.A.B.
Workshop Fan	1		1	7/064		31		do	do

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.

*N. S. Gurney.*

Electrical Engineers.

Date *2-4-1942*

**COMPASSES.**

Minimum distance between electric generators or motors and standard compass *290 feet*

Minimum distance between electric generators or motors and steering compass *286 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *14* Ampères *on the* feet from standard compass *7* feet from steering compass.

A cable carrying *14* Ampères *7* feet from standard compass *on the* 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.

SIR JAMES LAING & SONS LIMITED

*Alan James* Builder's Signature. Date

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *"Empire Airman"*

Plans. Are approved plans forwarded herewith *No* If not, state date of approval *13/3/41; 18/4/41*

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 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 run under working conditions with satisfactory results and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a closed vessel carrying petroleum in bulk.*

*Noted*  
*L.F.*  
*16/4/42*

Total Capacity of Generators *50* Kilowatts.

The amount of Fee ... £ *34 : 7/6* : When applied for, *21. March 1942*  
 Travelling Expenses (if any) £ : : When received, *.....19.....*

*Sturison*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 17 APR 1942*

Assigned *See Old No 33366*

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.)



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