

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 21 OCT 1941

Received at London Office.....

Date of writing Report 8.10.41 When handed in at Local Office.....19..... Port of Middlesbrough

No. in Survey held at Harbour Hill-on-Sea Date, First Survey 15-8-41 Last Survey 6-10-1941
Reg. Book. (Number of Visits.....)

36312 on the S/S "EMPIRE EMERALD" Tons { Gross 8032.20
Net 4675.62

Built at Harbour Hill-on-Sea By whom built James Shipbuilding Co Ltd Yard No. 534 When built 1941

Owners The Ministry of War Transport Port belonging to Middlesbrough

Electrical Installation fitted by James Shipbuilding Co Ltd Contract No. 534 When fitted 1941

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 Power 110 Direct or Alternating Current, Lighting Yes Power Yes If Alternating Current state frequency Prime Movers,

has the governing been tested and found efficient when the whole 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 engine room aft on raised 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 aft on raised platform

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 "Sindanyo", 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 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 synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Earth Testing, state means provided E lamps connected to E through two 1 fuses.



Switches, ~~Circuit Breakers~~ and Fuses, are they as per Rule 44, are the fuses an approved type 44, are all fuses labelled as per Rule 44, are the reversed current protection devices connected on the pole opposite to the equaliser connection 44, have they been tested under working conditions 44. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule 44.

Cables, are they insulated and protected as per the appropriate Tables of the Rules 46, if otherwise than as per Rule are they of an approved type 46, state maximum fall of pressure between bus bars and any point under maximum load 4.4V, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets 46. Are paper insulated and varnished cambric insulated cables sealed at the exposed ends 46 with insulating compound 46 or waterproof insulating tape 46. 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 46, are cables laid under machines or floorplates 46, if so, are they adequately protected 46. Are cables in machinery spaces, galleys, laundries, etc., lead covered 46 or run in conduit 46. State how the cables are supported and protected L.C.A.B. cables clipped to plate on under side of fore and aft

gangway: L.C.A.B. cables run in pipe with expansion joints on deck for emergency supply: L.C.A.B. cables on metal tray in machinery spaces: L.C.T.B. cables run on wooden girders in accommodation

Are all lead sheaths, armouring and conduits effectually bonded and earthed 46. Refrigerated chambers, are the cables and fittings as per Rule 46. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands 46, where unarmoured cables pass through beams, etc., are the holes effectually bushed 46 and with what material Lead. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule 46. Emergency Supply, state position 46 and method of control 46.

Navigation Lamps, are they separately wired 46, controlled by separate double pole switches 46 and fuses 46. Are the switches and fuses in a position accessible only to the officers on watch 46, is an automatic indicator fitted 46. Secondary Batteries, are they constructed and fitted as per Rule 46, are they adequately ventilated 46. Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof 46. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present 46, if so, how are they protected D.S.

"DIOPHRISM" flameproof lighting fittings as approved in Certificate and where are the controlling switches fitted in open accommodation, are all fittings suitably ventilated 46, are all fittings and accessories constructed and installed as per Rule 46. Searchlight Lamps, No. of none, whether fixed or portable 46, are their fittings as per Rule 46. Heating and Cooking, is the general construction as per Rule 46, are the frames effectually earthed 46, are heaters in the accommodation of the convection type 46. Motors, are all motors constructed and installed as per Rule 46 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil 46, if situated near unprotected combustible material state minimum distance from same horizontally 46 and vertically 46.

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing 46. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule 46. Control Gear and Resistances, are they constructed and fitted as per Rule 46. Lightning Conductors, where required are they fitted as per Rule 46. 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 46, are all fuses of the cartridge type 46.

They are and they of an approved type 46. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type 46. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule 46, are they suitably stored in dry situations 46. Insulation Tests, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory 46.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	20	110	182	600	Single Cylinders		
						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 ...	2x20	1	19/083	182	191	32740	V.C.	L.C.A.B.
" " EQUALISER ...								
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
Sub. Switchboard (Main Fed)	1	37/093	45	343	670	V.C.	L.C.A.B.	
Sub. Switchboard (Emergency Fed)	1	37/093	45	343	650	"	"	
Off lighting sub-board Fed	1	19/052	60	104	160	"	"	
Sub. Distribution	1	19/083	-	191	240	"	"	

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ... (off sub-board)							
NAVIGATION LIGHTS (off sub-board)	1	7/044	12	42	130	"	"
LIGHTING AND HEATING ... (connected with DP.D.T. switch fitted to sub-board)							
Engine Room Ltg. D.B. No. 1	1	7/044	15	42	64	V.C.	L.C.A.B.
" " " " " 2	1	7/044	15	42	60	"	"
Forecastle Ltg. Board	1	7/044	8	42	364	"	"
Main Hold D.B.							
Mid-Portables D.B.							
Pump Room Ltg. D.B.							
2 off sub Ltg. D.B. (off Mainboard)	1	7/044	18+21	42	60+90	V.C.	L.C.A.B.
2 Engine Ltg. D.B. (off Mainboard)	1	7/044	20+20	42	16+10	V.C.	L.C.A.B.
Off Portable SB. (off Mainboard)	1	7/044	-	42	60	V.C.	L.C.A.B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Off Vent Fan.	1	3	1	7/044	28	42	140+132 V.C. L.C.A.B.
Mid " "	1	3	1	7/044	28	42	140+90 " "

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. J. Glavin Electrical Engineers. Date *13.10.41*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *283 ft.*
 Minimum distance between electric generators or motors and steering compass *280 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying *14* Ampères *in the* feet from standard compass *7* feet from steering compass.
 A cable carrying *14* Ampères *7* feet from standard compass *in the* feet from steering compass.
 A cable carrying *001* 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 GUINNESS SHIPBUILDING CO. LIMITED,
Geo. M. Robertson 13/10/41
 Builder's Signature. Date
 Secretary.

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

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 in accordance with the Ministry of Shipping Specification and amendments thereto. The materials used are of good quality and design and the workmanship is good. On completion the equipment was run under full working conditions with satisfactory results, and the insulation resistance of each circuit was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Noted
L.S.
24/10/41.

Total Capacity of Generators *20 (+20.04)* Kilowatts.

The amount of Fee ...	£ <i>25</i> : <i>0</i> : <i>0</i>	When applied for, ... <i>20.10.1941</i>
Travelling Expenses (if any) £	: : :	

D. M. New
 Surveyor to Lloyd's Register of Shipping.

FRL 81 OCT 1941

Committee's Minute
 Assigned *See Mdb. J.C. 17123*

2m.10.38.—Transfer. (MADE IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

