

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 14 AUG 1941

Date of writing Report 17th July 1941 When handed in at Local Office 20/7/41 Port of Middeburgh

No. in Survey held at Hamilton Hill on 2nd Date, First Survey 20th May Last Survey 16th July 1941  
Reg. Book. Suppl. (Number of Vols. ....)

91014 on the S.S. "EMPIRE SAPPHIRE" Tons { Gross 8031.27  
Net 4693.27

Built at Hamilton Hill on 2nd By whom built Gurness & Co., Ltd. Yard No. 329 When built 1941

Owners Ministry of Shipping Port belonging to Middeburgh

Electrical Installation fitted by Gurness & Co., Ltd. (Gen. Dept.) Contract No. 329 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 minimum Voltage of supply for Lighting 110

Heating Power 110 Direct Yes 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

if not compound wound state distance between generators No and from switchboard No 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 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 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 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 on raised platform near generating etc.

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 Linsamp" 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

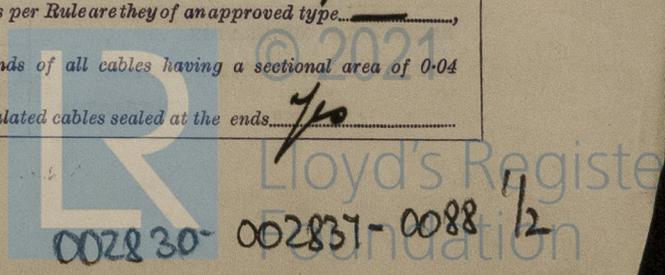
Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead" side of switches Yes Description 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 Earth lamps connected to E through Res. 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 None found, 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 4.4V., 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



with insulating compound \_\_\_\_\_ 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 \_\_\_\_\_ Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit \_\_\_\_\_ State how the cables are supported and protected L.C.A.B. cables clipped to plates on underside of fore and aft gangway; Emergency feeds L.C.A.B. run in pipe with expansion joints on deck; L.C.A.B. cables in machinery spaces; L.C.A.B. cables in accommodation.

Are all lead sheaths, armoring 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 See

"Explosion" flameproof lighting as approved installed in accommodation Yes 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 None fitted 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 None fitted

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing None fitted Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule None fitted 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 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.	Amperes.	Revs. per Min.	Fuel Used.	Flash Point of Fuel.		
MAIN	2	20	110	182	600	Single expansion 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 GENERATOR	2x20	1	19/083	182	191	3240	V.C.	L.C.A.B.
" " 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							
Dist. outd. feed	1	37/093	75	343	680	V.C.	L.C.A.B.
Dist. outd. emergency feed	1	37/093	75	343	670	No.	No.
Aft dist. bk. feed	1	19/082	60	104	190	No.	No.
Dist. connection	1	19/083	-	191	250	No.	No.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS (off out. outd.)	1	7/044	30	42	80	V.C.	L.C.A.B.
NAVIGATION LIGHTS (off out. outd.)	1	7/044	12	42	160	No.	No.
LIGHTING AND HEATING							
2 oppo. dist. bk. (off out. outd.)	1	7/044	1802	42	6090	No.	No.
2 oppo. dist. bk. (off aft dist. bk.)	1	7/044	2000	42	1600	No.	L.C.A.B.
Fore dist. bk. (off out. outd.)	1	7/044	8	42	370	No.	No.
Main Deck bk.	No.	No.	No.	No.	No.	No.	No.
Mid. Passages bk.	No.	No.	No.	No.	No.	No.	No.
Pump room bk.	No.	No.	No.	No.	No.	No.	No.
Aft Passages bk. (off aft dist. bk.)	1	7/044	20	42	60	V.C.	L.C.A.B.
Engine Room bk. No. 1	1	7/044	13	42	60	No.	No.
Engine Room bk. No. 2	1	7/044	17	42	60	No.	No.
Emergency WTT feed.	1	7/044	-	42	320	No.	No.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Aft Vent. Fan	1	3	1	7/044	28	42	140	V.C. L.C.A.B.
Mid. Vent. Fan (off out. outd.)	1	3	1	7/044	28	42	140	No. L.C.A.B.

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. P. Owen*

Electrical Engineers.

Date 18.7.41

COMPASSES.

Minimum distance between electric generators or motors and standard compass 280 feet

Minimum distance between electric generators or motors and steering compass 280 feet

The nearest cables to the compasses are as follows:—

A cable carrying 144 Ampères on the ~~standard~~ standard compass 7 feet from steering compass.

A cable carrying 144 Ampères 7 feet from standard compass on the ~~steering~~ 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.

Builder's Signature.

Date

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

Plans. Are approved plans forwarded herewith No If not, state date of approval 6/11/40

Certificates. Are certificates of test for ~~motors~~ 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 in accordance with the approved plans and the Surveyor's letters. 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 classed vessel carrying petroleum in bulk.

Noted  
15/8/41

Total Capacity of Generators 40 Kilowatts.

The amount of Fee ... £ 25 : - : When applied for, 13.8.1941.

Travelling Expenses (if any) £ : : When received, 19.

*G. G. G. G.*

Surveyor to Lloyd's Register of Shipping.

THE LLOYD'S REGISTER OF SHIPPING CO. LIMITED,

TUE. 18 AUG 1941

Committee's Minute

Assigned See Mab JE 17081

Geo. M. Roberts  
Secretary



Lloyd's Register Foundation

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.)