Rpt. 13.

No. 18670

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 27 JUL 1945

Date of writing Report 16-7-1945 When handed in at Local Office 25/7/1945 Port of West Hartlepool

No. in Reg. Book. Survey held at West Hartlepool Date, First Survey 23-5-45 Last Survey 12-7-1945 (Number of Visits 7)

19504 on the S.S. "EMPIRE EDDYSTONE" Tons Gross 7317.88 Net 5115.24

Built at West Hartlepool By whom built Wm. Gray & Co. Ltd Yard No. 1176 When built 1945

Owners "The Ministry of War Transport" Port belonging to West Hartlepool

Electrical Installation fitted by Wm. Gray & Co. Ltd Contract No. 1176 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk No. 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 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 Engine room sidened on raised steel, 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 On angle iron framework above 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 Ebony "Sintanyo", 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 A double-pole, single-throw quick-break knife switch and double-pole fuse.

and for each outgoing circuit a 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 ammeters 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 2 lamps coupled to 2 through HR 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 6.4, are the ends of all cables having a sectional area of 0·01 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 —, or run in conduit yes. State how the cables are supported and protected In machinery spaces, Tweendecks, etc. H.E. Cables drawn into H.S.S. Conduits fastened to the surface. In accommodation, etc. Cables clipped to the surface and protected as required by Hook or Metal Guards

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 effectively 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 ampère 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 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 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 —. **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 Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	2	15	110	136.5	550	Single Cylinder Vertical Steam Engines		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS. No. in Parallel Per Pole.	CONDUCTORS. Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES. In the Circuit.	MAXIMUM CURRENT IN AMPERES. Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
MAIN GENERATOR No.1	15	2	19/.064	136.5	166	40	WE	H.S.S. Conduit
" " EQUALIZER								
" " No.2	15	2	19/.064	136.5	166	50	WE	H.S.S. Conduit
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS. No. in Parallel Per Pole.	CONDUCTORS. Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES. In the Circuit.	MAXIMUM CURRENT IN AMPERES. Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
AUX. SWITCHBOARDS AND SECTION BOARDS ...							
Cargo SB.	1	7/.064	22	46	114	WE	H.S.S. Conduit
aft accommodation SB.	2	7/.052	42	74	378	"	" "

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/.064	13	46	240	WE	H.S.S. Conduit
NAVIGATION LIGHTS	1	7/.036	11	24	360	"	" "
LIGHTING AND HEATING	(Alternative supply from DB. C.O. Switch in Wheelhouse)						
Saloon DB.	1	7/.064	29	46	279	WE	H.S.S. Conduit
Lower Bridge DB.	1	7/.064	12	46	48	"	B.C. "
Engineers DB.P.	1	7/.052	26	87	153	"	H.S.S. Conduit
" " S.	1	7/.052	12	37	96	"	" "
Fwd Mast House DB. (Off Cargo SB)	1	7/.044	8	31	460	"	" "
Aft " " " " " "	1	7/.036	8	24	270	"	" "
Engine Aft DB.	1	7/.052	16	37	12	"	" "
Crew Deckhouse DB.	1	7/.052	6	37	84	"	" "
Engine Room Flg DB.	1	7/.036	16	24	36	"	" "
Emergency W/T.	1	7/.064	10	46	138	"	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
Hydraulic	1	3	1	7/.052	26	37	84	WE	H.S.S. Conduit
Refrigerating Mchy	1	5	1	7/.064	42	46	240	"	" "

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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 WILLIAM GRAY & CO. LIMITED

Thos. S. Simpson

GENERAL MANAGER *Engineers.* *Date* 21st July, 1945

COMPASSES.

Minimum distance between electric generators or motors and standard compass 90'

Minimum distance between electric generators or motors and steering compass 89'

The nearest cables to the compasses are as follows:—

A cable carrying .14 *Ampères* 7 *feet from standard compass* as fitted ~~*feet from*~~ *steering compass.*

A cable carrying .14 *Ampères* as fitted ~~*feet from*~~ *standard compass* 7 *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 WILLIAM GRAY & CO. LIMITED

Thos. S. Simpson

GENERAL MANAGER *Builder's Signature.* *Date* 21 July, 1945

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

Plans. *Are approved plans forwarded herewith* No. *If not, state date of approval* D. 21.9.44 - S. 26.9.44

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 in accordance with the approved plans and 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 operated on load 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

J Rus 1.8.45

Total Capacity of Generators (2×15) 30 *Kilowatts.*

The amount of Fee ... £22.10.0. Specification 5.12.6

Travelling Expenses (if any) £ : :

When applied for, 25/7/1945

When received. .....19.....

E D Ward

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 24 AUG 1945

Assigned See E.E. machy rpt.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

5m.4.58.—Transfer. (MADE AND PRINTED IN ENGLAND.)

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