

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

26 SEP 1943

Received at London Office

Date of writing Report 4-9-43 When handed in at Local Office 9-9-43 Port of West Hartlepool

No. in Survey held at West Hartlepool Date, First Survey 29-6-43 Last Survey 2-9-43
Reg. Book. (Number of Visits 9)

37313 on the S/S. "EMPIRE RIVAL" Tons {Gross 1011.81
Net 484.83

Built at West Hartlepool By whom built Wm Gray & Co Ltd Yard No. 1151 When built 1943

Owners The Ministry of War Transport Port belonging to West Hartlepool

Electrical Installation fitted by Wm Gray & Co Ltd Contract No. 1151 When fitted 1943

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

positive Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing none fitted 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 structure on raised stools

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 raised platform above 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 Heavy "Sindunyo", 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 switches a double-pole quick

break Rump switch and double pole fuse: A double pole double throw quick-break

Rump switch for supplying D.F. from either generator

and for each outgoing circuit a double-pole double-throw quick-break Rump 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 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

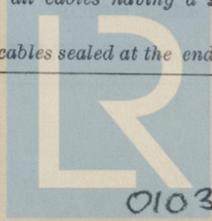
protection devices connected on the pole opposite to the equaliser connection, have they been tested under working conditions, and at what current

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 24.4V, 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 none fitted



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. all cables V.I.R. insulated. In machinery spaces, trunkheads, etc. cables run into H.G. screened conduit fastened to the surface. In accommodation lead covered cables clipped to the surface and protected where necessary by hood or metal.

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. 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. 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. 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. None fitted 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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.			Fuel Used.	Flash Point of Fuel.
MAIN	2	15	110	106	600	Single Cylinder	Vertical 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	No. 1.	2	19/064	136	166	20	V.I.R.	H.G. Screened Conduit
" " EQUALIZER	No. 2.	2	19/064	136	166	20	V.I.R.	H.G. Screened Conduit
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.

DESCRIPTION.	No.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS	1	7/064	13	46	384	V.I.R.	H.G. Screened Conduit
NAVIGATION LIGHTS	1	7/064	10	46	447	"	"
LIGHTING AND HEATING	(All taken from Saloon DB. to GO DP Switch in Wheelhouse)						
Saloon House Lighting DB.	1	7/064	11+4	46	350+27	V.I.R.	H.G. Screened Conduit
Kitchen DB.	1	7/064	28	46	81	"	"
Engineers Accommodation DB.	1	7/064	13-5	46	81	"	"
Crew Space Aft DB.	1	7/064	11-5	46	312	"	"
Machinery Space DB.	1	7/064	15	31	96	"	"
Emergency Light Supply	1	7/064	-	31	96	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
Refrigerating Motor	1	00	7/064	42	31	321	V.I.R.	H.G. Screened Conduit

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.

Wm. S. Simpson
FOR WILLIAM GRAY & CO. LIMITED.
GENERAL MANAGER

Electrical Engineers.

Date 6th Sept. 1943

COMPASSES.

Minimum distance between electric generators or motors and standard compass 146'

Minimum distance between electric generators or motors and steering compass 139'

The nearest cables to the compasses are as follows:—

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

A cable carrying 14 Ampères on the 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.

Wm. S. Simpson
FOR WILLIAM GRAY & CO. LIMITED.
GENERAL MANAGER

Builder's Signature.

Date 6th Sept. 1943

Is this installation a duplicate of a previous case. yes If so, state name of vessel S/S "Empire Drive"

Plans. Are approved plans forwarded herewith. No If not, state date of approval 18-5-42

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 under 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
L.H.
21/9/43

Total Capacity of Generators (2x15) 30 Kilowatts.

The amount of Fee ... £22. 10. 0.
Specification 5. 12. 6.
When applied for, Sept. 15. 1943.
Travelling Expenses (if any) £ : :
When received, 19.

S. D. Wood
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 28. SEP 1943

Assigned ac minute on 28/9/43



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5m. 4.38.—Transfer. (MADE AND PRINTED IN ENGLAND.)
(The Surveyors are requested not to write on or below the space for Committee's Minute.)