

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 17 MAR 1943

Date of writing Report 11th Mar 1943 When handed in at Local Office 17 MAR 1943 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 18th Dec 42 Last Survey 11th Mar 1943
Reg. Book. Suppt. (Number of Visits 10)

86344 on the S.S. 'EMPIRE BARDOLPH' Tons { Gross 7015 Net 4752

Built at Sunderland By whom built Short Bros. Ltd. Yard No. 474 When built 1943

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Eng. & Ing. Co. Ltd. Contract No. 474 When fitted 1943

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

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

Heating Power 110 Direct 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 Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

negative Yes 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 starboard side on

main deck, 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 starboard side off

main gunning 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 and vertically, what insulation

material is used for the panels 'Wony Kinsimp' 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 2 pole pole double

throw knife switch (one pole for ignitions) and double pole circuit

breakers with overcurrent trip on each pole and reverse current trip

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

switch and double pole fuse

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

ammeters Three voltmeters 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 Elamps connected to E through over 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 300 A, 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 30 A 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, Some W.E. earthed

state maximum fall of pressure between bus bars and any point under maximum load 24.4 kV, 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 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 Yes, if so, are they adequately protected _____ Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit Yes. State how the cables are supported and protected V.I.B. cables run in pipe alongside hatch coverings on deck and in heavy gauge secured conduit in machinery spaces. L.C. cables clipped to supported cable tray or H.R.C. cables run in wood cleats in ref. chambers. L.C. cables clipped to surface or to wood grounds in access. spaces. 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 fibre. 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 _____ 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 Yes. 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 situation 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
MAIN	3	35	110	300	Large engines		
EMERGENCY					steam engines		
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	3 x 35	1	37/083	300	296	45/10/100	V.C.	L.C.
" EQUALISER		1	19/083		191	2 1/2/100	V.C.	L.C.
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							
Section Bd. Fans No. 1 & 2	1	19/064	134	135	400	V.C.	Braided in pipe
Section Bd. Fans No. 3 & 4	1	19/064	134	135	400	V.C.	Braided in pipe
Section Bd. Fans No. 5 & 6	1	19/064	134	135	130	V.C.	Braided in pipe
Saloon Ltg. Section Board	1	19/083	49	118	390	V.I.B.	In pipe
Engin' Ltg. Section Board	1	19/083	51	118	180	V.I.B.	In pipe

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION	No.	CONDUCTORS	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet)	INSULATED WITH	HOW PROTECTED	
WIRELESS	1	19/064	35	83	480	V.I.B.	In pipe & L.C.
NAVIGATION LIGHTS (off Saloon Ltg.)	1	7/029	2	15	90	V.I.B.	L.C.
LIGHTING AND HEATING	All fed to main Ltg. ab. fitted from Bridge Ltg. ab.						
Saloon Ltg. ab.	1	7/044	20	31	24	V.I.B.	L.C.
Bridge Ltg. ab.	1	7/029	9	15	90	V.I.B.	L.C.
Gen'l. Comp. Ltg. ab.	1	7/026	10	24	174	V.I.B.	In pipe
Gen'l. Comp. Ltg. ab.	1	7/064	4	5	90	V.I.B.	L.C.
Liftboat Gen'l. Ltg. ab.	1	7/064	4	5	90	V.I.B.	L.C.
Gen'l. Ltg. ab.	1	7/026	20	24	144	V.I.B.	L.C.
Gen'l. Ltg. ab.	1	7/026	17	24	240	V.I.B.	L.C.
Off Comp. Ltg. ab.	1	7/026	8	24	200	V.I.B.	In pipe
Off Ltg. ab.	1	7/064	20	46	400	V.I.B.	In pipe
Engin' Rm. & Repiq. Comp. Rm. ab.	1	7/064	24+8	46	24+60	V.I.B.	In pipe

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	
Repin. Pump No. 1	1	8 1/2	7/064	67	75	120	V.C.	L.C.
Repin. Pump No. 2	1	8 1/2	7/064	67	75	134	V.C.	L.C.
Repin. Pump No. 3	1	8 1/2	7/064	67	75	108	V.C.	L.C.
Repin. Pump No. 4	1	8 1/2	7/064	67	75	150	V.C.	L.C.
Repin. Pump No. 5	1	8 1/2	7/064	67	75	132	V.C.	L.C.
Repin. Pump No. 6	1	8 1/2	7/064	67	75	182	V.C.	L.C.
Repin. Lica. Pump	1	10	19/064	83	83	100	V.I.B.	In pipe
Domestic Repin. Trip	1	8	19/064	42	83	400	V.I.B.	In pipe
Compass Rm. Fans	2	1/2	7/029	8+8	15	50+80	V.I.B.	L.C.

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. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.

Electrical Engineers.

Date 16.3.43

COMPASSES.

Minimum distance between electric generators ~~motors~~ and standard compass 142 feet

Minimum distance between electric generators ~~motors~~ and steering compass 139 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 his degrees on every course in the case of the

standard compass, and his degrees on every course in the case of the steering compass.

FOR SHORPE BROTHERS, LIMITED;

Norman Slater

Builder's Signature.

Date 16.3.43

Is this installation a duplicate of a previous case? No If so, state name of vessel

Plans. Are approved plans forwarded herewith? No If not, state date of approval 15/7/42 - 25/9/42

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 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. The protective devices of the circuit breakers were adjusted and operated and the insulation resistance of all circuits was measured and found good. This equipment is on my opinion suitable for a class vessel.

Noted
J.P.
24/3/43

Total Capacity of Generators 99 Kilowatts.

The amount of Fee ... £ 40: 10: 13 MAR 1943
(incl. Specimen)
Travelling Expenses (if any) £ : :
When received.
.....19.....

Ganton

Surveyor to Lloyd's Register of Shipping.

WED. 31 MAR 1943

Committee's Minute

Assigned See Ord. No. 33637

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.)



© 2020

Lloyd's Register Foundation