

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

26 JAN 1944

Date of writing Report 29-12-1943 When handed in at Local Office 4 JAN 1944 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 26-8-43 Last Survey 29-12-1943
Reg. Book. (Number of Visits 17)

37331 on the S/S. "EMPIRE TRAIL" Tons { Gross 7083
Net 4895

Built at Sunderland By whom built Shipbuilding Corp. Ltd Yard No. 1 When built (Wear Branch) Sunderland

Owners The Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by Sunderland Forge Engineering Co Ltd Contract No. 1 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 from pilot 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 on raised blocks

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 on bulkhead brackets

adjacent to 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 ebony "bindamyo", 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 single

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

throw quick-break knife switch for supplying D.G. from either generator

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 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 coupled 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

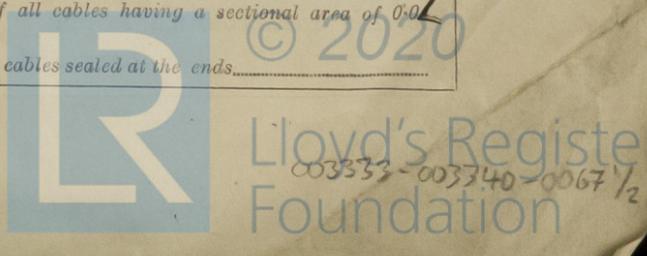
protection devices connected on the pole opposite to the equaliser connection —, have they been tested under working conditions, and at what current

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 > 6.6V., 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 —



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. no. Are cables in machinery spaces, galleys, laundries, etc., lead covered no or run in conduit yes. State how the cables are supported and protected In machinery spaces, bulkheads, etc V.I.R. cables run in heavy gauge screened conduit fastened to the surface. In accommodation V.I.R. lead covered cables clipped on the surface to wooden girders and protected where necessary by metal or wood.

Are all lead sheaths, armoring and conduits effectually bonded and earthed yes. Refrigerated chambers, are the cables and fittings as per Rule no.

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 no and method of control no.

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 no, are they adequately ventilated no what is the battery capacity in ampere hours no.

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 no.

and where are the controlling switches fitted no, 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 no.

are their fittings as per Rule no. Heating and Cooking, is the general construction as per Rule no.

are the frames effectually earthed no, are heaters in the accommodation of the convection type no. 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 no and vertically no. 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 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 no, are all fuses of the cartridge type no.

are they of an approved type no. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships no. Are the cables lead covered as per Rule no. 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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	15	110	136.5	850	Simple Cylinder Vertical Steam Engines		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return test).	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	15	1	19/083	136.5	191	V.C.	L.C.
" " EQUALIZER								
" " "	No. 2	15	1	19/083	136.5	191	V.C.	L.C.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return test).	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 ...							
For Accommodation S.B.-1	1	19/044	24	53	396	V.I.R.	H.G. Screened Conduit
Engines + Midship S.B.-2	1	19/044	13	53	156	"	"
Chief Off. S.B.-3	1	7/052	13	37	396	"	"

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return test).	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.			
WIRELESS	1	19/044	-	53	480	V.I.R.	H.G. Screened Conduit
NAVIGATION LIGHTS	1	7/036	6	24	60	"	"
LIGHTING AND HEATING							
Bridge Lighting DB-1A	1	7/036	5	24	72	V.I.R.	H.G. Screened Conduit
For Cargo Lighting DB-2	1	7/044	10	31	218	"	"
Aft Cargo Lighting DB-3	1	7/044	6	31	240	"	"
Engine & Boiler Room Ltg DB-D4	1	7/036	22	24	42	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return test).	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.			
Refrig. Compt. Turbine	1	5	1	19/044	34	53	306	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.

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

A. J. Gunn

Electrical Engineers.

Date 30-12-1943

COMPASSES.

Minimum distance between electric generators or motors and standard compass 61'

Minimum distance between electric generators or motors and steering compass 66'

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.

For and on behalf of
SHIPBUILDING CORPORATION, LTD

(WEAR BRANCH)

JOSEPH L. THOMPSON & SONS LTD.

Builder's Signature.

Date 3-1-44

Managing Agents.

H. Wright

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 24-8-43

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.

W. D. Wood
7/1/44

Total Capacity of Generators (2x15) 30 Kilowatts.

The amount of Fee ...	£22. 10. 0	When applied for,
<i>Specification</i>	<i>5. 12. 6</i>	<i>30 Dec 1943</i>
Travelling Expenses (if any) £	:	When received.
	19.....

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

TUES. 18 JAN 1944

Committee's Minute _____

Assigned see minute on J.C. Rpt.

5th A. 39.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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