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Rpt. 13.

No. 34084

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 27 NOV 1944

Date of writing Report 9th Nov 1944 When handed in at Local Office 24 NOV 1944 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 13th June Last Survey 10th Nov 1944
Reg. Book. Suppt. Wallace & Keith Shields (Number of Visits 2)

89320 on the S.S. "EMPIRE DYNASTY" Tons { Gross 992.5
Net 710.7

Built at Sunderland By whom built J. L. Thompson & Co. Ltd. Yard No. 631 When built 1944

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Ship & Eng. Co. Ltd. Contract No. 631 When fitted 1944

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

Have plans been submitted and approved No System of Distribution Two wire insulated Voltage of supply for Lighting 220

Heating 220 Power 220 Direct or Alternating Current, Lighting No Power No 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 No Are turbine emergency governors fitted with a

trip switch as per Rule No Generators, are they compound wound No, are they level compounded under working conditions No

if not compound wound state distance between generators and from switchboard No Where more than one generator is fitted are they

arranged to run in parallel No, are shunt field regulators provided No 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 No Have certificates of

test for machines under 100 kw. been supplied No and the results found as per rule No Are the lubricating arrangements and the construction

of the generators as per rule No Position of Generators Engine room starboard side aft

is the ventilation in way of generators satisfactory No are they clear of inflammable material No, if situated

near unprotected combustible material state distance from same horizontally and vertically No, are the generators protected from mechanical

injury and damage from water, steam and oil No, are the bedplates and frames earthed No and the prime movers and generators in metallic

contact No Switchboards, where are main switchboards placed Engine room starboard side aft on

gallery above generating sets

are they in accessible positions, free from inflammable gases and acid fumes No, are they protected from mechanical injury and damage from water, steam

and oil No, if situated near unprotected combustible material state distance from same horizontally and vertically No, what insulation

material is used for the panels "Gomy Sinsamp" if of synthetic insulating material is it an Approved Type No, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule No Is the frame effectually earthed No

Is the construction as per Rule No, including accessibility of parts No, absence of fuses on the back of the board No, individual fuses

to pilot and earth lamps, voltmeters, etc. No, locking of screws and nuts No, labelling of apparatus and fuses No, fuses on the "dead"

side of switches No Description of Main Switchgear for each generator and arrangement of equaliser switches Triple pole circuit

breaker with inverse-time-limit overcurrent release on two poles and reversed

current trip the third pole used for equaliser connection. Auxiliary gener-

ator controlled by double pole contactor with inverse-time overcurrent release

and for each outgoing circuit Double pole circuit breaker with inverse-time overcurrent release

on both poles and preference trip or double pole knife switch and double pole fuse

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule No Instruments on main switchboard 2 am-

ammeters 3 voltmeters synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection No Earth Testing, state means provided E lamps coupled to E through two fuses

Switches, Circuit Breakers and Fuses, are they as per Rule No, are the fuses an approved type No, are all fuses labelled as

per Rule No If circuit breakers are provided for the generators, at what overload current did they open when tested 700/800A with 0.1s time lag. Synchronising set to mark B 1500A, 10 seconds

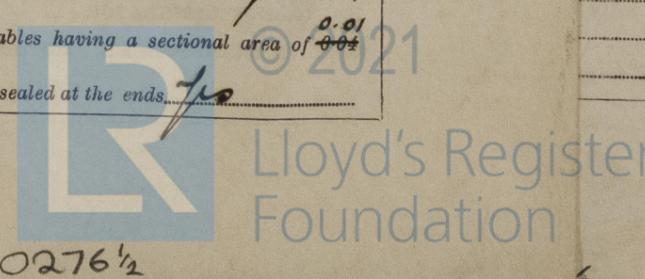
protection devices connected on the pole opposite to the equaliser connection No, have they been tested under working conditions, and at what current

did they operate 12/90A Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule No

Cables, are they insulated and protected as per the appropriate Tables of the Rules No, if otherwise than as per Rule are they of an approved type No

state maximum fall of pressure between bus bars and any point under maximum load 13.2V, are the ends of all cables having a sectional area of 0.01

square inch and above provided with soldering sockets No Are paper insulated and varnished cambric insulated cables sealed at the ends No



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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 Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit Yes. State how the cables are supported and protected L.C. cables clipped to solid plate with covers in laundries. L.C. cables clipped to surface or perforated tray parts of W.E. cable runs in conduit in machinery spaces. L.C. cables clipped to wood grounds or to surface 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 effectively bushed Yes and with what material Lead or fine. 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 Yes.

are the frames effectually earthed Yes, 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 Yes.

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 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.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	3	180	220	819	350	Diesel engine	Fuel oil	Above 150° F
Auxiliary	1	10	220	45.5	1000	Diesel engine	Fuel oil	Above 150° F
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 For Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATORS	3x180	2	6/1.093	819	2x464	80/1000	V.C.	L.C.
" EQUALISER		1	6/1.093		464	40/1000	Do.	Do.
Auxiliary Generator	10	1	7/0.64	45.5	75	48	Do.	Do.
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 For Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
No. 1. Ring Main	2	19/0.83	254	2x191	382 P	V.C.	L.C.
No. 2. Ring Main	2	19/0.83	226	2x191	272 P	Do.	Do.
No. 3. Ring Main	2	19/0.83	226	2x191	268 P	Do.	Do.
Accom. Ltg. S.B.	1	19/0.64	75	135	80	Do.	Do.
No. 1. Engine Room S.B.	1	19/0.64	50	135	100	Do.	Do.
No. 2. Engine Room S.B.	1	19/0.64	173	135	240	Do.	Do.
No. 3. Engine Room S.B.	1	19/0.64	160	135	80	Do.	Do.
Accom. Power S.B.	1	19/0.64	136	135	80	Do.	Do.
Bridge S.B. (off Accom. Ltg. S.B.)	1	7/0.64	45	75	200	Do.	Do.
Bridge S.B. (direct feed from Swbd.)	1	7/0.64	45	75	300	Do.	Do.
Prem. Dr. Ltg. S.B. (off Accom. Ltg. S.B.)	1	7/0.64	20	42	50	Do.	Do.
Galley S.B.	1	19/0.52	56	104	600	Do.	Do.
Gen. Cice. Pumps S.B.	1	7/0.64	24	42	80	Do.	Do.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS (off Bridge S.B.)	1	7/0.64	35	75	60	V.C.	L.C.
NAVIGATION LIGHTS D.B. (off Bridge S.B.)	1	1/0.64	5	10	30	Do.	Do.
LIGHTING AND HEATING							
Engine Room Ltg. D.B.	1	7/0.64	22	75	30x280	Do.	Do.
Cycloscopic Compass	1	7/0.64	23	42	240	Do.	Do.
Mid. Accom. Ltg. (4 sects.)	1	1/0.64	4x6	10	40, 20, 120, 140	Do.	Do.
Mid. Cargo Ltg. D.B.	1	1/0.64	6	10	40	Do.	Do.
Aft. Cargo & Accom. Ltg. D.B.	1	7/0.64	8x9	75	200x170	Do.	Do.
Fore. Cargo & Fore. Ltg. D.B.	1	7/0.64	2x5+1	75	220x210, 210x110	Do.	Do.
Radar Supply	1	7/0.64	15	42	200	Do.	Do.
Accom. Ltg. (4 sects.)	1	1/0.64	4x6	10	80, 50, 12, 80	Do.	Do.
Emerg. W.T.	1	7/0.29	10	15	120	Do.	Do.
Aft. Power D.B.	1	7/0.64	22	75	40	Do.	Do.
R.P.F. Feed	1	7/0.64		31	60	W.E.	Do.
Galley Connection	1	1/0.64		10	60	V.C.	Do.
Teaster & Releg. (2 sects.)	1	1/0.64	10, 2	10	60	Do.	Do.
Galley Hotplates (2 sects.)	1	7/0.64	27	75	40, 60	Do.	Do.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Main Circulating Pump	1	40/85	1	6/1.093	123/324	464	200	V.C. L.C.
Ballast Pump	1	20/34	1	19/0.64	79/36	135	280	Do. Do.
Fire & Bilge Pump	1	14/24	1	19/0.64	56/97	135	300	Do. Do.
Sanitary Pump	1	1.5	1	7/0.29	7	15	240	Do. Do.
Lub. Oil Pumps	2	10/14	1	7/0.64	41/166	75	120	Do. Do.
Turning Motor	1	8	1	7/0.64	51	75	100	Do. Do.
A.S. Pump	1	7/11	1	7/0.64	29/7/46	75	100	Do. Do.
Oil Purifier	3	0.5	1	7/0.29	2.6	15	120	W.E. Do.
Ex. Pump	1	4	1	7/0.64	17.6	42	120	V.C. Do.
A.F. Blower	1	2.5	1	7/0.44	10.1	31	100	W.E. Do.
A.F. Transp. Pump	1	1.5	1	7/0.64	62	75	100	V.C. Do.
Workshop	1	3	1	7/0.44	12.5	42	30	Do. Do.
A.F. Heater	1	2.5	1	7/0.44	2.5	31	140	W.E. Do.
Extraction Pps.	2	18.5	1	7/0.64	56.5	75	60	V.C. Do.
A.F. Pressure Pps.	2	20/5	1	7/0.64	18/115	31	40	W.E. Do.
Gen. Circ. Pps. (off S.B.)	2	2.75	1	7/0.44	12	42	18/42	V.C. Do.
Forced Draught Fans	2	27	1	19/0.64	153	135	140/20	Do. Do.
Refrigerating Machinery	2	5.1	1	7/0.64	21+5	42	100	Do. Do.
Windlax (off No. 1. Ring Main)	1	23	1	19/0.83	208	191	72	Do. Do.
Steering Gear (off Main Swbd)	1	25	1	19/0.64	138	135	600	Do. Do.
Steering Gear (off No. 3. R.M.)	1	25	1	19/0.64	138	135	120	Do. Do.
Warping Winch (off No. 3. R.M.)	1	20	1	19/0.64	114	135	100	Do. Do.
Cargo Winches (114A)	1/6	20						Fed direct off Ring Mains 4 off No. 1 6 off No. 2 6 off No. 3.
Cargo Winches (158A)	2	42						Fed direct off Ring Mains 2 off No. 1.
Accom. Vent. Fan	1	4	1	7/0.44	17.5	42	300	V.C. L.C.
E.R. Exhaust Fan	1	3/4	1	1/0.64	2.6	10	200	Do. Do.
Pantry Fan	1	1/2	1	1/0.64	2.7	10	100	Do. Do.
Galley Fan	1	1/8	1	1/0.64	0.72	10	150	Do. Do.



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 10-11-1944

J. L. Lawrence

COMPASSES.

Minimum distance between electric generators or motors and standard compass 20 feet

Minimum distance between electric generators or motors and steering compass 15 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.1 Ampères on the feet from standard compass 7 feet from steering compass.

A cable carrying 0.1 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 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.

N. J. Jennings Builder's Signature. Date 13.11.1944.
 General Manager.

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

Plans. Are approved plans forwarded herewith Yes. If not, state date of approval 16/6/43, 6/12/43

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. 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 tested and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a closed vessel.

Noted JRM 27.12.44

Total Capacity of Generators 550 Kilowatts.

The amount of Fee £48 : 14/6 When applied for, 14 Nov. 1944
(incl. 2p. fee) £14 : 14/0 When received, 24 Nov. 1944

Bartonson
 Surveyor to Lloyd's Register of Shipping.

FRI. 5 JAN 1945

Committee's Minute

Assigned See FE. Macky rpt

5m. 4.80.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

