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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 London

No. in Survey held at London Date, First Survey 13th June Last Survey 10th Nov. 1944
Reg. Book. Suppt. Wallend & North Shields (Number of Visits 2)89320 on the S.S. "EMPIRE DYNASTY" Tons { Gross 992.5
Net 712.7

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

Owners Ministry of War Transport Port belonging to London

Electrical Installation fitted by The London Dock & 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 Live wire mounted 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

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 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 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, what insulation

material is used for the panels "Quony 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 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 connections. Auxiliary gear

also controlled by double pole circuit breaker 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 2 three 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 Elamps 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 700/800A with 0.1 sec mark A & time lag. Sufficiently set to mark B & time lag (1500A, 10 seconds)

If circuit breakers are provided for the generators, at what overload current did they open when tested No, are the reversed current

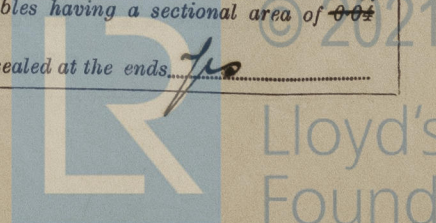
protection devices connected on the pole opposite to the equaliser connection No, have they been tested under working conditions, and at what current

did they operate No/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. 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. Are cables laid under machines or floorplates, if so, are they adequately protected. Are cables in machinery spaces, galleys, laundries, etc., lead covered or run in conduit. State how the cables are supported and protected. L.C. cables clipped to solid plate with even in 'live' ends. L.C. cables clipped to surface or protected by pipe or V.E. cable run 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. 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, where unarmoured cables pass through beams, etc., are the holes effectively bushed and with what material. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Emergency Supply, state position and method of control.

Navigation Lamps, are they separately wired controlled by separate double pole switches and fuses. Are the switches and fuses in a position accessible only to the officers on watch, is an automatic indicator fitted. 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. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present, if so, how are they protected.

and where are the controlling switches fitted, are all fittings suitably ventilated.

are all fittings and accessories constructed and installed as per Rule. 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 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil, 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. 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, are they suitably stored in dry situations. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	180	220	819	550	Diesel engine	Fuel oil	Above 150°F
Assisting	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	61/093	819	2x464	80/1000	V.C.	L.C.
" EQUALISER		1	61/093	464	40/1000		Do.	Do.
Assisting Generator	10	1	7/064	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	19/083	254	2x191	382	V.C.	L.C.
No. 2. Ring Main	2	19/083	226	2x191	272	Do.	Do.
No. 3. Ring Main	2	19/083	226	2x191	268	Do.	Do.
Accum. Ltg. S.B.	1	19/064	75	135	80	Do.	Do.
No. 1. Engine Room S.B.	1	19/064	50	135	100	Do.	Do.
No. 2. Engine Room S.B.	1	19/064	173	135	240	Do.	Do.
No. 3. Engine Room S.B.	1	19/064	160	135	80	Do.	Do.
Accum. Power S.B.	1	19/064	136	135	80	Do.	Do.
Bridge S.B. (off Accum. Ltg. S.B.)	1	7/064	45	75	200	Do.	Do.
Bridge S.B. (direct feed from S.B.)	1	7/064	45	75	300	Do.	Do.
Prem. Dr. Ltg. S.B. (off Accum. Ltg. S.B.)	1	7/064	20	142	50	Do.	Do.
Galley S.B.	1	19/052	56	104	600	Do.	Do.
Gen. Cice. Pumps S.B.	1	7/064	24	42	80	Do.	Do.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS (off Bridge S.B.)	1	7/064	35	75	60	V.C.	L.C.
NAVIGATION LIGHTS D.B. (off Bridge S.B.)	1	1/064	5	10	30	Do.	Do.
LIGHTING AND HEATING							
Engine Room Ltg. D.B.	1	7/064	22	75	30x280	Do.	Do.
Cycloscopic Compass	1	7/064	23	42	240	Do.	Do.
Mid. Accum. Ltg. (Heats.)	1	1/064	4x6	10	40x20	Do.	Do.
Mid. Cargo Ltg. D.B.	1	1/064	6	10	40	Do.	Do.
Att. Cargo & Accum. Ltg. D.B.	1	7/064	8x9	75	200x170	Do.	Do.
Ext. Cargo & Fuel Ltg. D.B.	1	7/064	2x5+1	75	220x210	Do.	Do.
Radar Supply	1	7/064	15	42	200	Do.	Do.
Accum. Ltg. (Heats.)	1	1/064	4x6	10	80x50	Do.	Do.
Emerg. W.T.	1	7/029	10	15	120	Do.	Do.
Att. Power D.B.	1	7/064	22	75	40	Do.	Do.
R.P.F. Feed	1	7/064	—	31	60	W.E.	Do.
Galley Connection	1	1/064	—	10	60	V.C.	Do.
Teaster & Refrig. (Heats.)	1	1/064	10x2	10	60	Do.	Do.
Galley Hotplates (2 each) off Galley S.B.	1	7/064	27	75	40x60	Do.	Do.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Main Circulating Pump	1	40/85	1	61/093	133/324	464x200	V.C. L.C.
Ballast Pump	1	20/34	1	19/064	79/136	135x280	Do. Do.
Fixed Bilge Pump	1	14/24	1	19/064	56/97	135x300	Do. Do.
Sanitary Pump	1	1.5	1	7/029	7	15x240	Do. Do.
Lub. Oil Pumps	2	10/14	1	7/064	41x166	75x120	Do. Do.
Turning Motor	1	8	1	7/064	51	75x100	Do. Do.
G.S. Pump	1	7/11	1	7/064	29/746	75x100	Do. Do.
Oil Purifier	3	0.5	1	7/029	2.6	15x120	W.E. Do.
E.W. Pump	1	4	1	7/064	17.6	42x120	V.C. Do.
E.F. Blower	1	2.5	1	7/044	10.1	31x100	W.E. Do.
E.F. Transp. Pump	1	1.5	1	7/064	62	75x100	V.C. Do.
Workshop	1	3	1	7/044	12.5	42x30	Do. Do.
E.F. Heater	1	2x1kw. 10.3kw.	1	7/044	2.5	31x140	W.E. Do.
Extraction Pps.	2	13.5	1	7/064	56.5	75x60	V.C. Do.
E.F. Pressure Pps.	2	2x0.5	1	7/044	13.8/11.8	31x40	W.E. Do.
Gen. Circ. Pps. (off S.B.)	2	2.75	1	7/044	12	42x18/42	V.C. Do.
Forced Draught Fans	2	27	1	19/064	133	135x140/20	Do. Do.
Refrigerating Machinery	2	5x1	1	7/044	21x5	42x100	Do. Do.
Windlance (off No. 1. Ring Main)	1	23	1	19/083	208	191x72	Do. Do.
Steering Gear (off Main S.B.)	1	25	1	19/064	138	135x600	Do. Do.
Steering Gear (off No. 3. R.M.)	1	25	1	19/064	138	135x120	Do. Do.
Warping Winch (off No. 3. R.M.)	1	20	1	19/064	114	135x100	Do. Do.
Cargo Winches (114A)	16	20					
Cargo Winches (158A)	2	42					
Accum. Vent. Fan	1	4	1	7/044	17.5	42x300	V.C. L.C.
E.R. Exhaust Fan	1	3/4	1	1/064	2.6	10x200	Do. Do.
Pantry Fan	1	1/2	1	1/064	2.7	10x100	Do. Do.
Galley Fan	1	1/8	1	1/064	0.72	10x150	Do. Do.

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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.

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

Electrical Engineers.

Date 10-11-1944

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.

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 classed vessel.

Noted Rm 27.12.44

Total Capacity of Generators 550 Kilowatts.

The amount of Fee *£44.0/6 58 : 14/6 :*
(incl. *Spencer*) *£44.0/6 14 : 14/0*

When applied for,

14 Nov. 1944

When received,

24 Nov. 1944 *Spencer*

Travelling Expenses (if any) £ — : — :

Surveyor to Lloyd's Register of Shipping.

FRI. 5 JAN 1945

Committee's Minute

Assigned *See FE. Machy rpt*



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