

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

2 JUL 1945

Received at London Office

Date of writing Report 29th May 1945 When handed in at Local Office 14 June 1945 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 24 Nov 1944 Last Survey 29th May 1945
Reg. Book. Suppt. and Walcott (Number of Visits 20)89415 on the SS "EMPIRE ALLENBY" Tons { Gross 9,954
Net 7,777

Built at Sunderland By whom built J. L. Thompson & Sons, Ltd. Yard No. 633 When built 1945

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Engineering Co. Ltd. Contract No. 633 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk? Is vessel equipped with D.F. E.S.D. Gy.C. Sub.Sig.

Have plans been submitted and approved? System of Distribution Voltage of supply for Lighting 220

Heating 220 Power 220 Direct or Alternating Current, Lighting Power 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 Are turbine emergency governors fitted with a

trip switch as per Rule. Generators, are they compound wound, are they level compounded under working conditions,

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, are shunt field regulators provided 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 Have certificates of

test for machines under 100 kw. been supplied and the results found as per rule Are the lubricating arrangements and the construction

of the generators as per rule Position of Generators Engine room starboard side

is the ventilation in way of generators satisfactory are they clear of inflammable material, 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, are the bedplates and frames earthed and the prime movers and generators in metallic

contact Switchboards, where are main switchboards placed Engine room starboard side on

galley above generating sets

are they in accessible positions, free from inflammable gases and acid fumes, are they protected from mechanical injury and damage from water, steam

and oil, if situated near unprotected combustible material state distance from same horizontally and vertically, what insulation

material is used for the panels "Ebonny Laminates", if of synthetic insulating material is it an Approved Type, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule Is the frame effectually earthed

Is the construction as per Rule, including accessibility of parts, absence of fuses on the back of the board, individual fuses

to pilot and earth lamps, voltmeters, etc., locking of screws and nuts, labelling of apparatus and fuses, fuses on the "dead"

side of switches Description of Main Switchgear for each generator and arrangement of equaliser switches 3-pole circuit-breaker

with inverse time limit of release on 2 poles, the 3rd pole used for equaliser

containing 2-pole circuit-breaker with inverse time limit of release on both poles and mechanically

interlocked with main circuit-breaker to trip the latter if closed when

push-button is operated and for each outgoing circuit 2-pole circuit-breaker with inverse time limit of release on

both poles and shunt trip coils operated by relay actuated by generator load

to provide reverse tripping double pole knife switch and 4-pole fuse

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Instruments on main switchboard 2m

ammeters 2m 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 5 lamps connected to E through two fuses

Switches, Circuit Breakers and Fuses, are they as per Rule, are the fuses an approved type, are all fuses labelled as

per Rule If circuit breakers are provided for the generators, at what overload current did they open when tested 900 A., are the reversed current

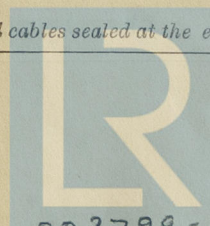
protection devices connected on the pole opposite to the equaliser connection, have they been tested under working conditions, and at what current

did they operate 85 A. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule

Cables, are they insulated and protected as per the appropriate Tables of the Rules, 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 4.13.2, are the ends of all cables having a sectional area of 0.01

square inch and above provided with soldering sockets Are paper insulated and varnished cambric insulated cables sealed at the ends

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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 cover in turntables. L.C. cables clipped to surface or perforated transverse plate on W.E. cables run in conduit in machinery spaces. L.C. cables clipped to wood grates or to surface in accommodation 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. Lead or fibre. 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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	180	220	819	550	Diesel Engines	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 Per 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	80/60/80	V.C.	L.C.
" EQUALISER		1	61/093		464	40/39/40	V.C.	L.C.
Auxiliary Generator	10	1	7/064	45.5	75	48	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							
No. 1 Ring Main	2	19/083	254	2x191	833	V.C.	L.C.
No. 2 Ring Main	2	19/083	226	2x191	775	Do.	Do.
No. 3 Ring Main	2	19/083	226	2x191	828	Do.	Do.
Accum. Ltg. S.B.	1	19/064	75	135	80	Do.	Do.
No. 1 E.R. S.B.	1	19/064	113	135	100	Do.	Do.
No. 2 E.R. S.B.	1	19/064	144	135	240	Do.	Do.
No. 3 E.R. S.B.	1	19/064	139	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 M. Subd.)	1	7/064	45	75	300	Do.	Do.
From O.K. Ltg. S.B. (off Accum. Ltg. S.B.)	1	7/044	20	42	50	Do.	Do.
Stokehold Fans S.B.	1	7/064	30	75	80	Do.	Do.
Generator Circ. 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 S.B. (off Bridge S.B.)	1	7/064	5	42	30	Do.	Do.
LIGHTING AND HEATING E.S.B. (off Bridge S.B.)	1	7/029	5	15	40	Do.	Do.
E.R. Ltg. S.B.	1	7/064	22	75	30+280	Do.	Do.
Cycle Compass Feed	1	7/064	23	42	240	Do.	Do.
Mid. Accum. Ltg. (Heats)	1	1/064	4x6	10	100, 200	Do.	Do.
Mid. Cargo Ltg.	1	1/064	6	10	40	Do.	Do.
Att. Cargo & Accum. Ltg. (Heats) Lighting S.B.	1	7/064	8+9	75	200+172	Do.	Do.
Fore. Cargo & Fore. Ltg.	1	7/064	23+1	75	180+116	Do.	Do.
Radar Supply (off Mid. Accum. Ltg. S.B.)	1	7/044	15	42	200	Do.	Do.
Accum. Ltg. (Heats) off From O.K. Ltg. S.B.	1	1/064	4x6	10	100, 200	Do.	Do.
Emergency W.T.	1	7/029	10	15	120	Do.	Do.
Att. Power S.B.	1	7/064	22	75	40	Do.	Do.
Crailley Connection off Accum. Power S.B.	1	1/064	—	10	60	Do.	Do.
Toaster Etc.	1	7/044	12	42	60	Do.	Do.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Main Circulating Pump	1	40/85	1	61/093	13/324	464	200	V.C. L.C.
Ballast Pump	1	20/34	1	19/064	79/136	135	280	Do. Do.
Fire & Bilge Pump	1	14/24	1	19/064	56/97	135	800	Do. Do.
Sanitary Pump	1	1.5	1	7/029	7	15	240	Do. Do.
Lub. Oil Pumps } off E.R. S.B. 1	2	10/14	1	7/064	41/516	75	120	Do. Do.
Turning Meter }	1	8	1	7/064	31	75	100	Do. Do.
G.S. Pump	1	7/11	1	7/064	29/746	75	100	Do. Do.
Oil Purifiers	3	0.5	1	7/029	2.6	15	120	Do. Do.
Fore. Pump	1	4	1	7/044	17.6	42	120	Do. Do.
O.F. Blower } off E.R. S.B. 2	1	2.5	1	7/044	10.7	42	100	Do. Do.
O.F. Trans. Pump	1	1.5	1	7/064	62	75	100	Do. Do.
Workshop	1	3	1	7/044	12.5	42	30	Do. Do.
Oil Fuel Heater } 1 kw. in Series	2		1	7/044	2.5	42	140	Do. Do.
Extraction Pps. } off E.R. S.B. 3	2	13.5	1	7/064	56.5	75	60	Do. Do.
O.F. Pressure Pps. }	2	2	1	7/044	13.2	42	40	Do. Do.
Gen. Circ. Pps. (off S.B.)	2	2.75	1	7/044	12	42	18/42	Do. Do.
Forced Draught Fans	2	37	1	19/083	153	191	140/120	Do. Do.
Refrigerating Machy.	2	540.5	1	7/044	21+3	42	100	Do. Do.
Windlass (off No. 1 R.M.)	1	53	1	19/083	203	191	72	Do. Do.
Steering Gear (off Main Subd.)	1	35	1	19/064	138	135	600	Do. Do.
Steering Gear (off No. 3 R.M.)	1	35	1	19/064	138	135	120	Do. Do.
Warping Winch (off No. 3 R.M.)	1	30	1	19/064	114	135	100	Do. Do.
Cargo Winches (114A)	16	30						Do. Do.
Cargo Winches (158A)	2	42						Do. Do.
Accum. Vent. Fan (off Power S.B.)	1	4	1	7/044	17.5	42	300	V.C. L.C.
Crailley Fan (off Power S.B.)	1	1/8	1	1/064	0.72	10	150	V.C. L.C.
E.R. Exhaust Fan (off Power S.B.)	1	3/4	1	1/064	3.5	10	200	V.C. L.C.
Stokehold Fans (off S.B.)	2	4.75	1	7/044	19.5	42	24/60	V.C. L.C.
Att. Accum. Vent. Fan	1	3	1	7/064	12	75	600	V.C. L.C.

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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 30.5.1945

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.

FOR AND ON BEHALF OF

JOSEPH W. HARRISON & SONS, LIMITED.

Builder's Signature.

Date 1-6-1945.

Is this installation a duplicate of a previous case Yes

If so, state name of vessel

"Empire Dynasty"

Plans. Are approved plans forwarded herewith Yes

If not, state date of approval

16/6/43; 6/12/43; 30/1/45

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 and the workmanship are good. On completion the equipment was run under working conditions with satisfactory results, the protective devices of the circuit breakers were adjusted and opened and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a closed vessel.

Noted

Run 9.7.45

Total Capacity of Generators 550 Kilowatts.

The amount of Fee ... £ 58: 14: 6

Birmingham £ 14: 14: 6

Travelling Expenses (if any) £

When applied for,

29.12.45

When received,

6.1.46

G. Harrison

Surveyor to Lloyd's Register of Shipping.

FRI. 20 JUL 1945

Committee's Minute

Assigned

Su F.E. machy. rph.



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