

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) - 4 JUN 1942

Received at London Office.....

Date of writing Report. 23<sup>rd</sup> May 1942, When handed in at Local Office. - 2 JUN 1942 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 5<sup>th</sup> Feb. Last Survey 28<sup>th</sup> May 1942  
Reg. Book. Suppt. and Warrant (Number of Visits.....) 9

36449 on the S.S. "EMPIRE COLERIDGE" Tons { Gross... 979.8  
Net... 577.2

Built at Sunderland By whom built Sir J. Langlands, Ltd. Yard No. 741 When built 1942

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Eng. Co. Ltd. Contract No. 741 When fitted 1942

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 Two wire unarmoured Voltage of supply for Lighting 110

Heating 110 Power 110 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 aft on raised platform

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 port side aft near

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. "Economy Lincomps" 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. Double pole

quick break knife switch and double pole fuse.

and for each outgoing circuit. 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. 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.  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. 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.

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. 4.00 v. are the ends of all cables having a sectional area of 0.04

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



with insulating compound \_\_\_\_\_ or waterproof insulating tape. Yps 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. Yps are cables laid under machines or floorplates. Yps if so, are they adequately protected. \_\_\_\_\_ Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yps or run in conduit. Yps State how the cables are supported and protected. L.C.A.B. cables run in hard wood cleats on sides of fore and aft gangway; L.C.A.B. cables run in pipe with expansion joints on deck for emergency mains; L.C.A.B. cables clipped to surface or to plate on tray in machinery spaces; L.C. cables clipped to ground or surface in accom.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yps Refrigerated chambers, are the cables and fittings as per Rule. Yps Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. Yps where unarmoured cables pass through beams, etc., are the holes effectually bushed. Yps and with what material. Lead or fibre Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yps Emergency Supply, state position \_\_\_\_\_ and method of control. \_\_\_\_\_

Navigation Lamps, are they separately wired. Yps controlled by separate double pole switches. Yps and fuses. Yps Are the switches and fuses in a position accessible only to the officers on watch. Yps is an automatic indicator fitted. Yps 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. Yps Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. Yps if so, how are they protected. Wagon flameproof lighting fittings installed in below-deck space. and where are the controlling switches fitted. In officers accommodation, are all fittings suitably ventilated. Yps are all fittings and accessories constructed and installed as per Rule. Yps 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. Yps and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. Yps 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. Yps 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. Yps are all fuses of the cartridge type. Yps are they of an approved type. Yps Are the fittings for pump rooms, 'ween deck spaces, etc., in accordance with the special requirements for such ships. Yps Are the cables lead covered as per Rule. Yps Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yps are they suitably stored in dry situations. Yps Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. Yps

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	25	110	227	685	Single expansion steam engines		
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 GENERATOR	2425	1	37.083	227	296	36.39	V.C.	L.C.A.B.
" " EQUALISER								
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							
Mid. S.B. Main Feds.	1	37.072	142	246	750	V.C.	L.C.A.B.
Mid. S.B. Amary. Feds.	1	37.072	142	246	820	do.	do.
Off. S.B. Feds.	1	19.161	88	185	170	do.	do.
E.C. Amary. S.B. Feds.	1	7.064	49	75	60	do.	do.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7.064	35	75	100	V.C.	L.C.
NAVIGATION LIGHTS	1	7.064	4	31	110	V.L.R.	do.
LIGHTING AND HEATING	Amary. Fed. to Main. Lig. Fed. fitted from Bridge. Lig. Fed.						
Bridge. Lig. Fed.	1	7.064	22	31	15	V.L.R.	L.C.
Mid. S. Fed. Lamp. Fed.	1	7.064	12	31	15	do.	do.
Upper Prop. Lig. Fed.	1	7.064	13	31	75	do.	do.
Bridge. Lig. Fed.	1	7.064	13	31	110	do.	do.
Lower Prop. Lig. Fed.	1	7.064	20	31	30	do.	do.
Lower Prop. Lig. Fed.	1	7.064	21	31	75	do.	do.
Off. Lamp. Fed.	1	7.064	2	31	30	do.	do.
Upper Prop. Lig. Fed.	1	7.064	13	31	30	do.	do.
Upper Prop. Lig. Fed.	1	7.064	9	31	110	do.	do.
Hotplate	1	7.064	19	31	90	do.	do.
Engine Room. Lig. Fed.	1	7.064	29	31	30	do.	do.
Charging Board	1	1.064	3	10	20	do.	L.C.A.B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Vent. Fan (Off. E.C. Amary. Fed.)	1	4 1/2	1	7.064	43	75	230 V.C. L.C.A.B.
Vent. Fan (Off. Mid. Fed.)	1	3	1	7.064	25	75	100 do.
Workshop Fan. Fed.	1	1	1	7.064	—	31	— V.L.R. do.
							Main not fitted

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.

BY THE SUNDERLAND FORGE & ENGINEERING CO., LTD. *H. J. Gurney* Electrical Engineers. Date 23. 5. 1942.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 290 feet

Minimum distance between electric generators or motors and steering compass 286 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 *his* course in the case of the standard compass, and *his* degrees on *his* course in the case of the steering compass.

*H. J. Gurney* SIGNED FOR AND ON BEHALF OF SIR JAMES WANG & SONS LIMITED. Builder's Signature. Date 29. 5. 42

Is this installation a duplicate of a previous case? *Yes* If so, state name of vessel *"Empire Arman"*

Plans: Are approved plans forwarded herewith? *Yes* If not, state date of approval *13/3/41; 18/4/41*

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 and is 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 and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a classed vessel intended for carrying petroleum in bulk.*

*Noted L.J. 12/6/42.*

Total Capacity of Generators 50 Kilowatts.

The amount of Fee ... £ 34 : 7/6 :  
 (incl. Specifn.)  
 Travelling Expenses (if any) £ :

When applied for, .....19.....  
 When received, .....19.....

*Burtonson*  
 Surveyor to Lloyd's Register of Shipping.

TUE 16 JUN 1942

Committee's Minute

Assigned *See Std. J.E. 33406*

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.)

