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awaiting machinery

Rpt. 13.

No. 34238

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

9 JUL 1945

Received at London Office

Date of writing Report 27th June 1945 When handed in at Local Office 5 JUL 1945 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 2nd Aug '44 Last Survey 29th June 1945
Reg. Book. Suppt. and Wallsend (Number of Visits) 15

89390 on the M.V. "EMPIRE CHANCELLOR" Tons { Gross 991.7
Net 592.1

Built at Sunderland By whom built Sir J. Laing & Co. Ltd. Yard No. 756 When built 1945

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Eng. Co., Ltd. Contract No. 756 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk Yes 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 minimum Voltage of supply for Lighting 110

Heating 110 Power 110 Direct 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 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 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 side on

amidships, 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 side

basic generating sets, 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 "Wony Sindang" 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 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 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 Elamp connected 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 Yes

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 0.91

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

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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.A. cables run in wood ducts under fire and explosion proofing in pipe with expansion joints on deck for auxiliary supply. L.C. cables clipped to surface or lay in machinery spaces. L.C. cables clipped to surface or ground in engine room. 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. 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, weather proof. 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. flameproof lighting fittings installed in continuously bounded space and where are the controlling switches fitted. In accommodation space above, 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. 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 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	1	30	110	278	685	Steam Engine		
	1	30	110	278	900	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 Dis. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATORS	2 x 30	1	37/093	278	343	42/76	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 Dis. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
Machinery Rm. Sanitary Rm.	1	19/083	144	191	620	V.C.	L.C.A.B.
Machinery Rm. Ammunition Rm.	1	19/083		191	620	V.C.	L.C.A.B.
Aft Section Board	1	19/064	75	135	72	V.C.	L.C.
Engine Room Section Board	1	19/064	85	135	6	V.C.	L.C.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	35	75	100	V.C.	L.C.
NAVIGATION LIGHTS	1	7/036	4	278	110	W.E.	L.C.
LIGHTING AND HEATING	Aft. Rm. to Main Deck, aft. from Bridge, etc. as above:						
Bridge Ltg. Rm.	1	7/044	13	31	110	W.E.	L.C.
Aft. W.T. Rm.	1	7/064	35	75	100	V.C.	L.C.
Officers' Ldg. Rm.	1	7/044	13	31	75	W.E.	L.C.
Accommodation Rm.	1	7/044	22	31	15	W.E.	L.C.
Cargo Ldg. Rm.	1	7/044	12	31	15	W.E.	L.C.
Ballast Rm. Ldg.	1	7/036	6	24	110	W.E.	L.C.
Forward Hold	1	7/036	18	24	300	W.E.	L.C.A.B.
Upper Deck Ldg. Port Rm.	1	7/044	9	31	144	W.E.	L.C.
Upper Deck Ldg. Starboard Rm.	1	7/044	13	31	50	W.E.	L.C.
Port Deck Ldg. Port Rm.	1	7/044	21	31	132	W.E.	L.C.
Port Deck Ldg. Starboard Rm.	1	7/044	20	31	30	W.E.	L.C.
Aft Cargo Ldg. Rm.	1	7/044	2	31	100	W.E.	L.C.A.B.
Emergency W.T.	1	7/044	10	31	162	W.E.	L.C.
Engine Room Ldg. Rm.	1	7/064	35	46	24/180	W.E.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Oil Purifiers	3	2	1	7/044	17	31	66/78/90
Crane	1	2	1	7/044	17	31	200
Workshop	1	2	1	7/044	17	31	80
Vent. Fan aft. Rm.	1	3	1	7/044	25	31	100
Vent. Fan aft. Rm.	1	2	1	7/052	17	37	220
Boat Winches aft. Rm.	2	2	1	7/036	17	24	50/90
Boat Winches aft. Rm.	2	2	1	7/036	17	24	50/110

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 29. 6. 1945

J. V. Suramp

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 0.14 Ampères on the feet from standard compass 7 feet from steering compass.

A cable carrying 0.14 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 *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 THE SUNDERLAND FORGE & ENGINEERING CO., LTD.
J. V. Suramp
 Director.

Builder's Signature.

Date

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *'Empire Inventor'*

Plans. Are approved plans forwarded herewith *Yes* If not, state date of approval *14/2/42 & 26/8/44*

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

*Valid
 This 31.7.45*

Total Capacity of Generators 60 Kilowatts.

The amount of Fee £ 35 : 12/6
 (Incl. Specification) When applied for, 3 JUL 1945
 Travelling Expenses (if any) £ : : When received, ..19.....

G. Harrison

Surveyor to Lloyd's Register of Shipping.

FRI. 3 AUG 1945

Committee's Minute

Assigned *See F.E. machy rpt.*

Form 4.39.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

