

Rpt. 13.

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

17 NOV 1944

Date of writing Report 30-10-1944 When handed in at Local Office 4 NOV 1944 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 8-8-44 Last Survey 29-10-1944  
Reg. Book. 89316 on the S/S "EMPIRE COWDRAY" (Number of Visits 20)

Built at Sunderland By whom built Shipbuilding Co. (New) Yard No. 4 When built 1944  
Owners The Ministry of War Transport Port belonging to Sunderland  
Electrical Installation fitted by Sunderland Forge Engineering Co. Ltd. Contract No. 4 When fitted 1944

Is vessel fitted for carrying Petroleum in bulk No 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 insulated Voltage of supply for Lighting 110

Heating — Power 110 Direct or 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

positive 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, on raised derrick

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 on angle framework adjacent to generators

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 Two 'Ainslie' 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 2 double-pole single

throw quick-break knife switch and double-pole fuse: a double-pole double-throw knife

switch for supplying D.C. from either generator

and for each outgoing circuit a "Senton" double-pole "two-way off" rotary type switch and

double-pole fuse

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

ammeters 2 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 coupled to E through hrs & 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 —

state maximum fall of pressure between bus bars and any point under maximum load > 6.65 are the ends of all cables having a sectional area of 0.04

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



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 No, if so, are they adequately protected. — Are cables in machinery spaces, galleys, laundries, etc., lead covered. — or run in conduit. Yes. State how the cables are supported and protected. In machinery spaces, two decks, aft accommodation etc V.I.R. cables run into heavy gauge secured conduit fastened to the surface: In engine & aft accommodation V.I.R. cables clipped to the surface of bulkheads and protected by wood or metal guards as required

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. 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. Yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed. Yes and with what material. Lead. 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. No, 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. —, are the frames effectually earthed. —, 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. — 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. 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				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2 ✓	12 ✓	110 ✓	109 ✓	880 ✓	Single Cylinder Vertical Steam Engines		
EMERGENCY ...								
ROTARY TRANSFORMER								

## GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load 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.	Rate.			
MAIN GENERATOR ... ..	12	1	19/064	109	135	24	V.C.	L.C.
" " <del>Emergency</del> ... ..								
" " <del>Emergency</del> ... ..	12	1	19/064	109	135	28	V.C.	L.C.
EMERGENCY GENERATOR ... ..								
ROTARY TRANSFORMER: MOTOR ... ..								
GENERATOR ... ..								

### MAIN DISTRIBUTION CABLES.

[illegible]

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	...	...	...	...	...	...	...	...	...
NAVIGATION LIGHTS	1	7-029	5	15	334	"	"	"	"
LIGHTING AND HEATING	1	7-044	25	53	334	V.I.R.	H.G.S. Gnduit		
Salmon D.B.	1	7-044	25	53	334	V.I.R.	H.G.S. Gnduit		
Refrigerating Supply	1	7-044	27	53	394	"	"	"	"
Engine Lighting D.B.	1	7-044	6	31	132	"	"	"	"
Oil	1	7-064	18	46	450	"	"	"	"
Engine Com "	1	7-064	25	36	60	"	"	"	"
Deck Rig	1	7-064	13	46	132	"	"	"	"
Turn Tank	1	7-064	26	46	484	"	"	"	"

## MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
Hemphill Motor	1	3	1	7-064	26	46	424	V.I.R	H.F.S. Condit
Peking Compression "	1	3	1	7-064	26	46	86	"	" "
Kankwaan Fan "	1	1/2	1	7-029	3	15	48	"	" "



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 31-10-1944

*H. S. Gurney*

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass

61'

Minimum distance between electric generators or motors and steering compass

51'

The nearest cables to the compasses are as follows:—

A cable carrying  $\frac{1}{4}$  Ampères 7 feet from standard compass on the feet from steering compass.

A cable carrying  $\frac{1}{4}$  Ampères on the feet from standard compass 7 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.

On behalf of

SHIPBUILDING CORPORATION LTD.  
(WEAR BRANCH)

Builder's Signature.

Date 2-11-44

JOSEPH L. THOMPSON & SONS, LTD.

*J. Hunter* General Manager

Is this installation a duplicate of a previous case *no* If so, state name of vessel

Plans. Are approved plans forwarded herewith *no* If not, state date of approval 23-8-44

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 in accordance with the approved plans and the Ministry of Shipping specification and amendments thereto. The materials used are of good quality and design and the workmanship is good. Upon completion the equipment was operated on load with satisfactory results and the insulation resistance of each circuit was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Total Capacity of Generators (2x12) 24 Kilowatts.

The amount of Fee ...

£19. 10. 0

When applied for,

4. 17. 6

When received.

Travelling Expenses (if any) £

When received.

19.....

Surveyor to Lloyd's Register of Shipping.

*B. S. Ward*

Committee's Minute

FRI. 17 NOV 1944

Assigned

*See Minute on Ed. H. Mack. Rpt.*

5m. 1.30.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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Foundation