

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

19 JUL 1945

Received at London Office

Date of writing Report 10-7-1945 When handed in at Local Office 14-7-1945 Port of West Hartlepool

No. in Survey held at West Hartlepool Reg. Book. 89505 on the S.S. "EMPIRE ALDCATE" Date, First Survey 25-4-45 Last Survey 7-7-1945 (Number of Visits 3)

Tons Gross 3484.87 Net 2166.88

Built at West Hartlepool By whom built Wm. Gray & Co. Ltd Yard No. 1180 When built 1945

Owners The Ministry of War Transport Port belonging to West Hartlepool

Electrical Installation fitted by Wm. Gray & Co. Ltd Contract No. 1180 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk No. Is vessel equipped with D.F. Yes E.S.D. No. 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 10 Direct or Alternating Current, Lighting 400 Power 400 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 on raised platform of main engine

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 Heavy "Kinsulite" 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 switches a 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 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 No.

ammeters Yes 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 Examples Cuptek G.E. Through And 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 7.6 lb, are the ends of all cables having a sectional area of 0.01

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



005167-005173-0081

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 yes, are cables laid under machines or floorplates no, if so, are they adequately protected no. Are cables in machinery spaces, galleys, laundries, etc., lead covered no or run in conduit yes. State how the cables are supported and protected In machinery spaces, along deck, ventilating, passageway etc. All cables drawn into H.G.S. Conduit protected to the surface. In accommodation, L.C. cables clipped to the surface protected as required by work or metal guards.

Are all lead sheaths, armouring and conduits effectually bonded and earthed yes. Refrigerated chambers, are the cables and fittings as per Rule no. 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 effectually bushed yes and with what material lead or fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule yes. Emergency Supply, state position no and method of control no.

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 no, are they adequately ventilated no what is the battery capacity in ampere hours no.

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 no.

and where are the controlling switches fitted no, are all fittings suitably ventilated yes.

are all fittings and accessories constructed and installed as per Rule yes. Searchlight Lamps, No. of no, whether fixed or portable no, are their fittings as per Rule no. Heating and Cooking, is the general construction as per Rule no.

are the frames effectually earthed no, are heaters in the accommodation of the convection type no. 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 no and vertically no. 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 no. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing no. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule no. Control Gear and Resistances, are they constructed and fitted as per Rule yes. Lighting Conductors, where required are they fitted as per Rule no. 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 no, are all fuses of the cartridge type no are they of an approved type no. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships no. Are the cables lead covered as per Rule no. 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			R.P.M.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		H.P.	Kilowatts	Volts			Fuel Used	Flash Point of Fuel
MAIN	2	15	110	136.5	685	Single Cylinder Vertical		
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	No. 1	2	19/0.64	136.5	166	48	W.E.	H.G.S. Conduit
" " EQUALISER	No. 2	2	19/0.64	136.5	166	42	W.E.	H.G.S. Conduit
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							
Cabin Flat 4th DB.	2	7/0.52	60	74	60	W.E.	H.G.S. Conduit

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION	No.	CONDUCTORS	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet)	INSULATED WITH	HOW PROTECTED
WIRELESS	1	7/0.64	10	46	540	W.E. H.G.S. Conduit
NAVIGATION LIGHTS	1	7/0.36	8	24	540	" "
LIGHTING AND HEATING	<i>(Alternative supply from D.P.C.D. switch in head room)</i>					
Antenna Inlet DB.	1	7/0.52	15	37	495	W.E. H.G.S. Conduit
Cabin 1st DB.	1	7/0.52	7	37	21	" "
Cabin 2nd DB.	1	7/0.64	19	46	495	" "
Refrigerator DB (H. Cabin Flat 4th DB)	1	7/0.64	26	46	30	" "
Propeller 4th DB	1	7/0.64	8	46	30	" "
Harbour DB	1	7/0.52	26.8	37	49	" "
Eng. 7th Cabin 1st DB.	1	7/0.36	13	24	12	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE NUMERATED	No.	B.H.P.	CONDUCTORS	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet)	INSULATED WITH	HOW PROTECTED
Refrigerator Motor	1	2 1/2	7/0.86	22	24	180	W.E. H.G.S. Conduit
No. 1. Harbour Lamp	1	1/2	7/0.52	13.4	24	15	" "
" 2	1	1/2	7/0.52	13.4	24	15	" "

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.

*Thos. S. Simpson*

Electrical Engineers.

Date 11th July '45

COMPASSES.

Minimum distance between electric generators or motors and standard compass 178'

Minimum distance between electric generators or motors and steering compass 176'

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères 7 feet from standard compass on the feet from steering compass.

A cable carrying .14 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 any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

Builder's Signature

Date 11th July '45

*Thos. S. Simpson*

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 S. 27.2.45: D. 20.2.45

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

Total Capacity of Generators (2x15) 30 Kilowatts.

The amount of Fee ...	£22. 10. 0	When applied for,	15/7/45
<i>Specification</i>	5. 12. 6	When received,	19
Travelling Expenses (if any) £	:		

*S.D. Ward*  
 Surveyor to Lloyd's Register of Shipping.

FRI. 24 AUG 1945

Committee's Minute

Assigned See F.E. machy. rpt.

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

