

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report. 9-7-1947 When handed in at Local Office. 12 July 1947 Port of Sunderland  
 No. in Survey held at Sunderland Date, First Survey 28-4-47 Last Survey 4-7-1947  
 Reg. Book. S.S. "MARTIN CARL" (Number of Visits. 14)  
 on the Tons { Gross 2498.97  
 Net 1370.60  
 Built at Sunderland By whom built S.P. Austin & Sons Ltd Yard No. 389 When built 1947  
 Owners R/S Dampskroisk Humdal. Port belonging to Copenhagen  
 Electrical Installation fitted by Campbell & Fetherwood Ltd. Contract No. 389 When fitted 1947  
 Is vessel fitted for carrying Petroleum in bulk No Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. Yes

Have plans been submitted and approved. Yes System of Distribution Low-Voltage installed Voltage of supply for Lighting 110  
 Heating Power Yes 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 Yes, 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 situated on fixed stools  
 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 fixed platform in front of engine  
 room Are  
 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 strong "Sindermys" 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 a triple-pole (magnet  
 for equaliser) air break circuit - breaker fitted with 0/2 A.V. current tripping devices.  
 and for each outgoing circuit a double-pole quick break Rungs 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 Yes Earth Testing, state means provided E lamps coupled 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 15%, are the reversed current  
 protection devices connected on the pole opposite to the equaliser connection Yes, have they been tested under working conditions, and at what current  
 did they operate 30 A. 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 2.6 V. 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. Yes, if so, are they adequately protected. Yes Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. Yes State how the cables are supported and protected. In machinery spaces, immediately etc. V.C. L.C.B. Cables fastened to the surface and protected as required. In accommodation L.C. 7 Telephone cables in the passage at the accessible work sample.

Are all lead sheaths, armouring and conduits, effectually bonded and earthed. Yes Refrigerated chambers, are the cables and fittings as per Rule. Yes 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. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position. Yes and method of control. Yes

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. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. See Remarks

Fittings, are all fittings on weather decks, in storeholds 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. See Remarks

and where are the controlling switches fitted. Yes, are all fittings suitably ventilated. Yes are all fittings and accessories constructed and installed as per Rule. Yes Searchlight Lamps, No. of Yes, whether fixed or portable. Yes are their fittings as per Rule. Yes Heating and Cooking, is the general construction as per Rule. Yes are the frames effectually earthed. Yes are heaters in the accommodation of the convection type. See Remarks 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. Yes and vertically. Yes 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. Yes

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. Yes Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. Yes Control Gear and Resistances, are they constructed and fitted as per Rule. Yes Lightning Conductors, where required are they fitted as per Rule. Yes 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. Yes Are all fuses of the cartridge type. Yes are they of an approved type. Yes Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships. Yes Are the cables lead covered as per Rule. Yes 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	25	110	228		Main Engine	1. Diesel	2. Red Diesel above 160°
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	25	1	37/072	228	246	40	V.C.	L.C.B.
" " EQUALISER	25	1	19/083		191	20	"	"
" " "	25	1	37/072	228	246	40	"	"
" " "	25	1	19/083		191	20	"	"
Emergency generator	5	1	7/064	45.5	75	50	"	"
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							
High built-in switch supply tank cells	1	7/064	49	75	160	V.C.	L.C.B.
Intermediate DB 2B. R. 1 - off above	1	7/044	29	42	80	"	"
Bridge DB " " D	1	7/044	55	75	150	"	"
Forward DB 2B. R. 2	1	7/064	48	75	284	"	"
Main DB off " " off but built-in	1	7/044	36	75	376	"	"
Bridge DB 19	1	7/044	29	42	120	"	"
Engine Room " " 5	1	7/064	47	75	76	"	"
Emergency Heating	1	19/083	100	191	284	"	"

#### LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/044	25	42	90	V.C.	L.C.B.
NAVIGATION LIGHTS	1	3/036	3	10	24	"	"
LIGHTING AND HEATING							
Emergency light - off but built-in	1	7/036		28	150	V.C.	L.C.B.
Warehouse DB 15.1" off " "	1	"	9	"	56	"	"
Intermediate DB 15.2" " "	1	"	20	"	15	"	"
Bridge DB 15.3" " " 8	1	"	15	"	120	"	"
" " " 15.4" " " 8	1	"	"	"	36	"	"
" " " 15.5" off Main M. 1st	1	7/044	32	42	120	"	"
Main DB off " " 1	1	7/036	12	28	12	"	"
Perp " " " 1	1	"	15	"	30	"	"
Engine Room " " 1	1	"	10	"	60	"	"
Radar Supply	1	7/044	20	42	200	"	"
Bye	1	"	30	"	220	"	"

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
No. 2 Vent Fan. Perp HK	1	1	1	7/036	10	28	60	V.C. L.C.B.
" 1 " Perp. HK	1	1	1	"	"	"	80	" "
" 3 " S. " "	1	1	1	"	"	"	80	" "
" 4 " P. Brake HK P.	1	1	1	"	"	"	30	" "
Emergency Vent Fans	2	9	1	3/036	8	10	144/144	" "
Brake Fan	1	9	1	7/036	"	28	200	" "
Main Pump	1	5	1	"	5.7	"	72	" "
Workshop Motor	1	3	1	7/044	26	42	100	" "
Refrigerating	1	2	1	"	18	"	200	" "
Main Pump - Main Fan	1	5	1	7/036	5.7	28	150	" "



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.

CAMPBELL & IONERWOOD, LTD.

PER *Thos. H. de* Electrical Engineers.

Date *10 to July 1947*

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass *10'*

Minimum distance between electric generators or motors and steering compass *22'*

The nearest cables to the compasses are as follows:—

A cable carrying *15* Ampères *10'* feet from standard compass *on the* feet from steering compass.

A cable carrying *15* Ampères *on the* feet from standard compass *10'* 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.

S. P. AUSTIN & SON, LTD.

Builder's Signature.

Date *11.7.47*

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 *25.4.47*

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 open type lighting fittings in hot shower bathrooms are of a type unsuitable for steam laden atmosphere. The Bureau's attention was drawn to the advisability of watertight pattern to comply with the requirements of section 10, clause C. & D. of the electrical rules; but they expressed a preference for the type objected to. The electrical equipment of the vessel has been installed under special survey in accordance with the approved plans and, with the exception of the above, the "rules for electrical equipment". 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 closed vessel.*

Total Capacity of Generator *(2x25) 55* Kilowatts.

The amount of Fee ... *£35. 10. 0.* When applied for, *JUL 12 1947*

Travelling Expenses (if any) £ : : When received, *19.*

Committee's Minute *JUL 15 AUG 1947*

Assigned *See F.E. mchy. rph*

*B. S. Mann*  
Surveyor to Lloyd's Register of Shipping.