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No. 34278

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.

13 SEP 1945

Date of writing Report... 24th Aug. 1945 When handed in at Local Office... 1.1 SEP 1945 Port of Sunderland

No. in Survey held at Sunderland and Date, First Survey 25th April Last Survey 29th Aug. 1945  
Reg. Book. Walsend (Number of Visits... 14...)

23277 on the S.S. "EMPIRE DOMINICA" Tons { Gross... 7319  
Net... 5118

Built at Sunderland By whom built. Short Bros. Ltd. Yard No. 485 When built 1945

Owners. Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by Campbell & Sherrwood, Ltd. Contract No. 485 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk... 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 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 raised

stairs 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 forward

near 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... "Gony Sinsings" 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. E lamps 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 0.01

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 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. W.E. cables run in heavy galley covered conduit in 'tween decks and in machinery spaces: engine and boiler room wires in 'Pyrites' cable: L.C. cables clipped to surface or wired grounds in access spaces.

Are all lead sheaths, armoring 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 \_\_\_\_\_ 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 Yes, 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	15	110	136	550	Single expanded steam engine		
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 of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATORS	2 x 15	1	19/0.83	136	191	62/62	V.C.	L.C.+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 of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...							
Machinery Ltg. Ab.	1	7/0.64	30	46	240	W.E.	In Conduit
Engine Room Ltg. Ab.	1	19/0.52	64	64	240	W.E.	In Conduit
Off Ab.	1	19/0.52	48	64	296	W.E.	In Conduit
Cargo Ltg. Ab.	1	19/0.52	62	64	129	W.E.	In Conduit

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	19/0.52	25	64	240	W.E.	In Conduit & L.C.
NAVIGATION LIGHTS Ab.	1	7/0.64	9	31	240	W.E.	In Conduit & L.C.
LIGHTING AND HEATING	Alt. supply to heat Ltg. Ab. from Machinery Ab.						
Captain's Ltg. Ab.	1	7/0.64	7	31	120	W.E.	L.C.
Boat Ltg. Ab.	1	7/0.64	14	31	84	W.E.	L.C.
Off Messing Ab.	1	7/0.36	9	24	150	W.E.	L.C.
Off Ldg. Ab.	1	7/0.64	25	46	126	W.E.	L.C.
Off Engineers' Ab.	1	7/0.64	24	46	18	W.E.	L.C.
Off Ldg. Ab.	1	3/0.36	5	10	160	W.E.	L.C.
Off Ldg. Ab.	1	7/0.64	10	31	152	W.E.	L.C.
Off Ldg. Ab.	1	7/0.64	10	31	140	W.E.	L.C.
Off Ldg. Ab.	1	7/0.64	12	31	12	W.E.	L.C.
Off Ldg. Ab.	1	7/0.64	21	31	66	W.E.	In Conduit
Off Ldg. Ab.	1	7/0.64	41	46	378	W.E.	In Conduit
Off Ldg. Ab.	1	1.04	24	104	100	M.I.	C.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
			No. in Parallel Per Pole.	Sectional Area of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Roping m/c.	1	5	1	19/0.52	41	64	265	W.E.	In Conduit
Wind Fan (Off aft Ab.)	1	3	1	7/0.64	26	31	140	W.E.	L.C.

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 & ISHERWOOD, LTD.  
*John Mearns* Electrical Engineers. Date 22 Aug 1945

COMPASSES.

Minimum distance between electric generators or motors and standard compass 86 feet  
 Minimum distance between electric generators or motors and steering compass 80 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 SHORT BROTHERS, LIMITED.

*Norman Staley* Builder's Signature. Date 31 August 1945

SECRETARY

Is this installation a duplicate of a previous case Yes If so, state name of vessel "EMPIRE NAIRABI"

Plans. Are approved plans forwarded herewith Yes If not, state date of approval 13/3/43

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 with the Secretary's letters. The materials used and the workmanship are 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.

Noted  
Hru 25.9.45

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... £ 28 : 2/6 : 25 Aug 1945  
 (Incl. Specifn.)

Travelling Expenses (if any) £ : : 1. Sep. 1945 Hru.

*Garrinson*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute 28 SEP 1945

Assigned See F.E. machy. rpt.

5m.4.34.—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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