

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office. 24 SEP 1942

Date of writing Report..... 10..... When handed in at Local Office..... 16/9/42 Port of Newcastle on Tyne

No. in Survey held at Walker Date, First Survey 29-7-42 Last Survey 9-9-1942
(Number of Visits..... 5.....)

Reg. Book. 86264 on the EMPIRE REYNOLDS Tons { Gross 1128
Net 11634

Built at Walker By whom built Swan Hunter & Wigham Richardson Ltd. Yard No. 1712 When built 1942

Owners Ministry of War Transport Port belonging to British

Electrical Installation fitted by Campbell & Fisherwood & Co Ltd Contract No. 1 When fitted 1942

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

Heating Power Yes Direct or Alternating Current, Lighting direct Power direct 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 — 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 on platform off 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 Aft and near 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 Syndane

, 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 effectively 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 Circuit breakers

with % coil and Rv current trip and double pole fuses, double pole quick break double throw knife switches

and for each outgoing circuit Double pole quick break double throw knife switches and double pole fuses.

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 Lamps connected to earth via fuse switches

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 280A, 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 3, 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 *Yes* 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. — Are cables in machinery spaces, galleys, laundries, etc., lead covered *Yes* or run in conduit. *No*. State how the cables are supported and protected. *Lead covered armoured & braided in machinery spaces, galleys, centre castle etc clamped to steel trays or direct to sheet work, in accommodation spaces lead covered clamped to wooden battens.* Are all lead sheaths, armouring and conduits effectively 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 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. — 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. *In centre castle for water light fittings in pump room for light fittings are wired into lines in* and where are the controlling switches fitted. *Mast ships.* —, 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 effectively 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. *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.	Rays. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN <i>N°1</i>	1	25	110	227	600	Steam engine	—	—
<i>N°2</i>	1	25	110	227	600	" "	—	—
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.				
MAIN GENERATOR ... <i>N°1</i> ...	25	1	37/063	227	295	52'	V.C. L.C.H.B
" " EQUALISER ... <i>N°2</i> ...	25	1	37/083	227	295	52'	V.C. L.C.H.B
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.				
AUX. SWITCHBOARDS AND SECTION BOARDS						
	1	37/083	133	295	780'	V.C. L.C.A+B
	1	7/064	15	46	905'	VIR
	1	7/036	15	24	66	"
	1	7/064	103	46	270	L.C.B
	1	37/083	295	60'	V.C	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	15	46	900'	VIR	L.C.A+B
NAVIGATION LIGHTS	1	7/039	15	15	960'	"	"
LIGHTING AND HEATING	1	7/036	7	24	26'	"	L.C.B
Cargo lights midships	1	7/039	3	15	312'	"	L.C.A+B
" " aft	1	7/064	30	46	21'	"	"
Engine room lighting (Starboard)	1	7/064	40	46	52'	"	"
" " (Port)	1	7/064	23	21	31'	"	"
Centre Castle	1	7/044	18	24	96'	"	L.C.B
Officers accom (midships)	1	7/026	12	15	42'	"	"
Pantry - saloon (Starboard)	1	7/029	12	15	26'	"	"
" " (Port)	1	7/029	10	15	26'	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Tent fan (Engines rooms)	1	34	1	7/064	26	46	52'
" " (Kitchens)	1	34	1	7/064	26	31	125'

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.

Mr. H. J. Campbell

Electrical Engineers.

Date *10 Sept 1942*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *12'-0"*

Minimum distance between electric generators or motors and steering compass *17'-0"*

The nearest cables to the compasses are as follows:—

A cable carrying *0.9* Ampères *inside* feet from standard compass *—* feet from steering compass.

A cable carrying *1.4* Ampères *—* feet from standard compass *inside* 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 *No*

The maximum deviation due to electric currents was found to be *5°* degrees on *Every* course in the case of the standard compass, and *5°* degrees on *Every* course in the case of the steering compass.

S. W. M. Ltd., SWAN, MARSH & RICHARDSON, LTD.

Builder's Signature. Date.

Thos Morrison

Is this installation a duplicate of a previous case *No* If so, state name of vessel *EMPIRE GARRICK*

Plans. Are approved plans forwarded herewith *No* If not, state date of approval *28/11/41*

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith *No*

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 specification. The materials used are of good quality and the workmanship is good. On completion the equipment was run under working conditions with satisfactory results, the operation of the circuit breakers protective devices was checked and adjusted and the insulation resistance of all circuits and apparatus was measured and found good. The equipment is in my opinion suitable for a clanned vessel.*

Noted

L.J.

24/9/42.

Total Capacity of Generators *50* Kilowatts.

Sld. alc

The amount of Fee £ *34: 7* When applied for, *22 SEP 1942*

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

B. J. Connell

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 29 SEP 1942

Assigned

See Nov. 26. 100727