

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report... 9<sup>th</sup> Dec 44 When handed in at Local Office... 15.1.1945 Port of... Glasgow

No. in Survey held at... Glasgow Date, First Survey... 26<sup>th</sup> Feb, 1944 Last Survey... 29<sup>th</sup> Dec. 1944  
Reg. Book. 89371 on the M. V. EMPIRE WILSON

Built at... Glasgow By whom built... G. Connell & Co. Ltd Yard No... 446 When built... 1944

Owners... Ministry of War Transport Port belonging to... Glasgow  
Electrical Installation fitted by... POWER: H. M. Spelro & Co. LIGHTING: H. T. Robertson & Co. Contract No... 446 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. Yes Sub.Sig. No

Have plans been submitted and approved... Yes System of Distribution... Two wire Voltage of supply for Lighting... 220

Heating... 220 Power... 220 Direct or Alternating Current, Lighting... D.C. Power... D.C. 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... Yes 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... in engine room, aux generator in boiler room

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... near 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... Sindanyo, 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... Triple pole circuit

breakers fitted with O/L and reverse current trips.

and for each outgoing circuit.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... Instruments on main switchboard... 3

ammeters... 3 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... earth lamps

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... 1200 amps 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... 160 amps. 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... W.E.

state maximum fall of pressure between bus bars and any point under maximum load... 9 volts, 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. Yes or run in conduit. — State how the cables are supported and protected. L.C. cables, clipped, protected by casing through holds or where necessary

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. —, 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. — Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. —, 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. Yes, are the frames effectually earthed. Yes, 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. Yes

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. Yes. 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.

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# 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							
AUX. SWITCHBOARD LIGHTING ETC.	1	37/083	175	296	220	V.C.	L.C.
GALLEY SECTION BD.	1	37/103	301	385	110	"	"
ENGINE ROOM SECTION BOX 'A'	1	19/052	92	104	240	"	"
" " " " 'B'	1	19/064	109	135	140	"	"
" " " " 'C'	1	19/052	101	104	140	"	"
RING MAIN AFT.	1	37/083	266	296	428	"	"
" " MID-FORD	1	37/072	228	246	550	"	"
" " FORD.	1	37/083	255	296	720	"	"
PANTRY DISTRIBUTION BOX 'E'	1	19/052	50	64	160	Rubber	"
CHINESE GALLEY " " 'F'	1	19/064	80	83	400	"	"

# LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/044	15	31	144	Rubber	L.C.
NAVIGATION LIGHTS	1	7/036	10	24	20	"	"
LIGHTING AND HEATING							
AUXILIARY MAINS	1	7/064	68	75	30	V.C.	L.C.
AMIDSHIPS	1	7/064	55	75	30	"	"
MECHANICAL VENTILATION	1	7/064	60	75	30	"	"
REFRIGERATOR	1	7/044	26	31	50	Rubber	"
BRIDGE & RADAR	1	7/064	36	46	112	"	"
ENGINE ROOM LIGHTING	1	7/036	15	24	110	"	"
POOP LIGHTING	1	7/064	31	46	380	"	"
FORD CARGO LIGHTS	1	7/036	17	24	430	"	"
AFT " "	1	7/036	9	24	260	"	"
GYRO COMPASS	1	7/036	12	24	100	"	"
DEGAUSSING	1	19/072	85	157	150	V.C.	"

# MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
PRIMING PUMP	1	2	1	7/029	9	15	100	Rubber L.C.
TURNING GEAR	1	22	1	19/052	86	104	80	V.C. "
AIR COMPRESSOR	2	67	1	37/083	257	296	236	" "
BALLAST PUMP	1	53	1	37/072	195	246	132	" "
BILGE PUMP	2	18	1	19/044	72	87	200	" "
FRESH WATER PUMP	1	6	1	7/052	26	37	100	Rubber "
FUEL TRANSFER	2	8	1	7/052	80	37	70	" "
PISTON JACKET COOLING	2	53	1	37/072	195	246	190	V.C. "
FUEL VALVE COOLING PUMP	2	1	1	7/029	5	15	120	Rubber "
CIRCULATING PUMP	1	53	1	37/072	195	246	80	V.C. "
AUX. F.W. COOLING PUMP	2	5 1/2	1	7/044	21	31	180	Rubber "
AUX. S.W. CIRCULATING PUMP	1	5 1/2	1	7/044	21	31	100	" "
FORCED LUBRICATION PUMP	2	17	1	19/044	68	87	130	V.C. "
OIL SEPARATOR MOTOR	3	3	1	7/036	13	24	160	Rubber "
CRANE MOTOR	1	3	1	7/036	13	24	180	" "
ENGINE ROOM VENT FAN	2	4	1	7/036	17	24	180	" "
OIL BURNING INSTALLATION	1	5	1	7/044	21	31	160	" "
WINCH MOTORS	17	30	1	37/083	116	296	RING MAINS V.C.	"
WINCH MOTORS	2	42	1	37/083	164	296	RING MAINS V.C.	"
WINDLASS	1	69	1	37/083	260	296	60	" "
STEERING GEAR	2	35	1	19/083	132	191	440	" "
WORKSHOP MOTOR	1	3	1	7/036	13	24	180	Rubber "

# 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	200	1	127/103	910	932	105	V.C.	L.C.
" " EQUALISER	—	1	61/103	—	540	5	"	"
AUX GENERATOR	15	1	7/064	68	75	30	"	"
Center generator for 1 drive 3 removed 10.47 and a few miles 6 aft 45CSA Cabled to original dynamo.								
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

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Lloyd's Register Foundation



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.

POWER-

LIGHTING

Thos. Spence & Co.  
H. J. Robertson & Co.

Electrical Engineers.

27<sup>th</sup> Decem<sup>r</sup> 1944  
Date 29<sup>th</sup> Decem<sup>r</sup> 1944

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass..... 25 feet

Minimum distance between electric generators or motors and steering compass..... 16 feet

The nearest cables to the compasses are as follows:—

A cable carrying ..... 1 ..... Ampères led into feet from standard compass led into feet from steering compass.

A cable carrying ..... 16 ..... Ampères ..... 12 ..... feet from standard compass ..... 8 ..... 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.

For CHARLES CONNELL & CO., Limited

W. W. Ballin SECRETARY

Builder's Signature.

Date 8<sup>th</sup> Jan<sup>y</sup> 1945.

Is this installation a duplicate of a previous case..... No If so, state name of vessel .....

Plans. Are approved plans forwarded herewith..... If not, state date of approval..... LIGHTING 9.8.44  
POWER 1.11.43.

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 fitted on board under special survey, tested under working conditions, and found satisfactory. All the requirements of the approved plans, and Ministry of War Transport specification have been carried out. The materials and workmanship are good.

Total Capacity of Generators..... 615 ✓ Kilowatts.

1/5 OF FEE TO SUNDERLAND } £ 60 : 7 : 6 :  
The amount of Fee ... }  
4/5 OF FEE TO GLASGOW }  
SPEC £ 15 : 1  
When applied for, 16 JAN 1945  
When received, ..... 19.....  
Travelling Expenses (if any) £ : :

J. C. Wright

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW 16 JAN 1945

Assigned SEE ACCOMPANYING MACHINERY REPORT.