

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... 29 OCT 1941

Date of writing Report 2<sup>nd</sup> October 1941 When handed in at Local Office 27. 10. 41 Port of Glasgow

No. in Reg. Book 23307 Survey held at Port Glasgow & Greenock Date, First Survey 18. 8. 41 Last Survey 7<sup>th</sup> October 1941 (Number of Visits 3)

on the M.V. "EMPIRE TIDE" Tons { Gross 697 1/2 Net

Built at Port Glasgow By whom built Lithgows Ltd. Yard No. 945 When built 1941

Owners His Majesty represented by The Minister of War Transport Port belonging to Greenock

Electrical Installation fitted by The Sunderland Forge & Eng. Co. Ltd. Contract No. 945 When fitted 1941

Is vessel fitted for carrying Petroleum in bulk - Is vessel equipped with D.F. E.S.D. Gy.C. Sub.Sig.

Have plans been submitted and approved System of Distribution two wire Voltage of supply for Lighting 110.

Heating Power 110 Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current state frequency Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off Are turbine emergency governors fitted with a

trip switch as per Rule Generators, are they compound wound, are they level compounded under working conditions

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, are shunt field regulators provided 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 and the results found as per rule Are the lubricating arrangements and the construction

of the generators as per rule Position of Generators In engine room

is the ventilation in way of generators satisfactory are they clear of inflammable material, 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, are the bedplates and frames earthed and the prime movers and generators in metallic

contact Switchboards, where are main switchboards placed Near generators.

are they in accessible positions, free from inflammable gases and acid fumes, are they protected from mechanical injury and damage from water, steam

and oil, if situated near unprotected combustible material state distance from same horizontally and vertically, what insulation

material is used for the panels, if of synthetic insulating material is it an Approved Type, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule Is the frame effectually earthed

Is the construction as per Rule, including accessibility of parts, absence of fuses on the back of the board, individual fuses

to pilot and earth lamps, voltmeters, etc., locking of screws and nuts, labelling of apparatus and fuses, fuses on the "dead"

side of switches Description of Main Switchgear for each generator and arrangement of equaliser switches.

DP. Switch and fuses.

and for each outgoing circuit DP. Switch and fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule 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 Earth lamps.



Switches, Circuit Breakers and Fuses, are they as per Rule Y, are the fuses an approved type Y, are all fuses labelled as per Rule Y, are the reversed current protection devices connected on the pole opposite to the equaliser connection Y, have they been tested under working conditions Y. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Y.

Cables, are they insulated and protected as per the appropriate Tables of the Rules Y, if otherwise than as per Rule are they of an approved type Y, state maximum fall of pressure between bus bars and any point under maximum load 4 1/2 Psi, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Y. Are paper insulated and varnished cambric insulated cables sealed at the exposed ends Y with insulating compound Y or waterproof insulating tape Y. 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 Y, are cables laid under machines or floorplates Y, if so, are they adequately protected Y. Are cables in machinery spaces, galleys, laundries, etc., lead covered Y or run in conduit Y. State how the cables are supported and protected Main r.t.k. in galvanised steel pipes. Machinery space L.C. clipped. Accommodation H.R. clipped.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Y. Refrigerated chambers, are the cables and fittings as per Rule Y. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Y, where unarmoured cables pass through beams, etc., are the holes effectually bushed Y and with what material fibres. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Y. Emergency Supply, state position Y and method of control Y.

Navigation Lamps, are they separately wired Y controlled by separate double pole switches Y and fuses Y. Are the switches and fuses in a position accessible only to the officers on watch Y, is an automatic indicator fitted Y. Secondary Batteries, are they constructed and fitted as per Rule Y, are they adequately ventilated Y.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof Y. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present Y, if so, how are they protected Y.

and where are the controlling switches fitted Y, are all fittings suitably ventilated Y, are all fittings and accessories constructed and installed as per Rule Y. Searchlight Lamps, No. of Y, whether fixed or portable Y, are their fittings as per Rule Y. Heating and Cooking, is the general construction as per Rule Y, are the frames effectually earthed Y, are heaters in the accommodation of the convection type Y. Motors, are all motors constructed and installed as per Rule Y and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil Y, if situated near unprotected combustible material state minimum distance from same horizontally Y and vertically Y. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing Y. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule Y. Control Gear and Resistances, are they constructed and fitted as per Rule Y. Lightning Conductors, where required are they fitted as per Rule Y. 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 Y, are all fuses of the cartridge type Y are they of an approved type Y. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type Y. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule Y, are they suitably stored in dry situations Y. Insulation Tests, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory Y.

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	12	110	109	850	Steam engine		
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX LENGTH (lead plus return feet).	INSULA-TED 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 ...	12	1	19.064	109	135	40	Y	L.C.
" " EQUALISER ...								
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.		
AUX. SWITCHBOARDS AND SECTION BOARDS ... ENGINE ROOM. POWER SB.		1	7.064	63	75	60	Y	L.C.

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.		
WIRELESS ...		1	7.064	15	46	488	Rubber.	IN CONDUIT
NAVIGATION LIGHTS								
LIGHTING AND HEATING								
MID ACCOMMODATION & NAVIGATION.		1	19.044	21.6	53	420	Rubber.	" "
ENGINEERS & CREW AFT.		1	7.064	24.6	46	448	"	"
ENGINE ROOM. L.T.		1	7.036	17	24	26	"	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.		
REFRIG. MACHINERY.	1	25	1	7.044	21	31	400	Rubber.	IN CONDUIT.
OIL PURIFIERS.	2	2	1	7.036	18	24	30	"	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.

P. Pro THE SUNDERLAND FORGE & ENGINEERING CO. LTD. Electrical Engineers. Date 23rd October 1941.

*J. C. Shankes*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *30 feet*

Minimum distance between electric generators or motors and steering compass *25 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *18* Ampères *24 in* feet from standard compass *24 in* feet from steering compass.

A cable carrying *8* Ampères *6* feet from standard compass *6* 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.

LITHGOWS LIMITED, Secretary *J. M. Macdonald* Builder's Signature. Date *24/10/41*

Is this installation a duplicate of a previous case *Yes*. If so, state name of vessel *M.V. EMPIRE SPRING*

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 taken under full working conditions and found satisfactory. The materials and workmanship are good. All the requirements of the approved plan and M.O.W.T specifications have been carried out.*

*Rob*  
*25/10/41*

*Noted*  
*R. J. ...*  
*25/10/41*

Total Capacity of Generators *24* Kilowatts.

The amount of Fee ...	£ 19 : 10 :	When applied for,
M.O.W.T. specif.	£ 4 : 17 : 6	<i>at 50%</i>
Travelling Expenses (if any)	£ <i>10/-</i>	When received,
		.....19.....

*R. J. ...*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 28 OCT 1941*

Assigned *See Greenock First Entry Report No 21590*

2m.10.38.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.) (MADE IN ENGLAND.)

