

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

of writing Report. 12<sup>th</sup> NOVEMBER 1945. When handed in at Local Office. 3 12 1945. Port of. GLASGOW

in Survey held at GREENOCK Date, First Survey 23<sup>rd</sup> JULY Last Survey 16<sup>th</sup> NOVEMBER 1945  
(Number of Visits.....)

No. and date of Reg. Book. 447 on the 'EMPIRE TRINIDAD' Tons { Gross 8217 Net 4766

built at GLASGOW By whom built BLYTHWOOD SHIPBUILDING CO. LTD. Yard No. 80 When built 1945

owners. MINISTRY OF WAR TRANSPORT Port belonging to GLASGOW.

Electrical Installation fitted by MESSRS SUNDERLAND FORGE & ENGINEERING CO. LTD. Contract No. 80 When fitted 1945

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

Have plans been submitted and approved. YES System of Distribution TWO WIRE Voltage of supply for Lighting 110

Power 110 Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current state periodicity - Prime Movers,

Are turbine emergency governors fitted with a switch as per Rule. YES Are turbine emergency governors fitted with a switch as per Rule. YES

Generators, are they compound wound. YES, are they level compounded under working conditions. YES

Where more than one generator is fitted are they not compound wound state distance between generators. - and from switchboard. -

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 fitness 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

is the ventilation in way of generators satisfactory. YES are they clear of inflammable material. YES

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. IN ENGINE-ROOM ABOVE 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. SINDARYO 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 the construction as per Rule. YES

including accessibility of parts. YES absence of fuses on the back of the board. YES

individual fuses pilot and earth lamps, voltmeters, etc. YES locking of screws and nuts. YES

labelling of apparatus and fuses. YES fuses on the "dead" ends of switches. YES

Description of Main Switchgear for each generator and arrangement of equaliser switches. 300 AMP. D.P. KNIFE PATTERN SWITCH WITH ZED TYPE FUSES.

and for each outgoing circuit. 300, 200, 100, 60 OR 30 AMP D.P. CHANGE-OVER SWITCHES WITH ZED TYPE 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. EARTH LAMPS.

are 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. -

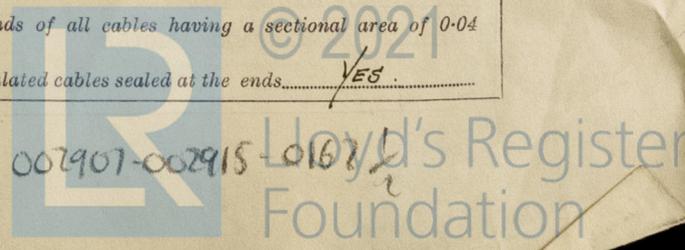
are the reversed current protection devices connected on the pole opposite to the equaliser connection. -

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

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. 6.6 VOLTS



with insulating compound YES 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. —. State how the cables are supported and protected. MAINS: L.C. S.W.A.B. CABLES CLIPPED TO GALVANISED CHANNEL UNDER GANTRY.

MACHINERY SPACE: L.C. S.W.A.B. CABLE CLIPPED TO STEEL TIRY.  
ACCOMMODATION: V.C. L.C. CABLE CLIPPED TO WOODWORK.

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 effectually bushed. YES and with what material. FIRRE. 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. FLAMEPROOF FITTINGS

and where are the controlling switches fitted. IN ACCOMMODATION., 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. YES. 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.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	30	110	273	580	STEAM ENGINE	—	—
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load 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	30	1	37/083	273	296	30	V.C.	L.C. S.W.A.B.
" " EQUALISER								
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load 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							
MIDSHIP PANEL	1	37/083	193	296	606	V.C.	L.C. S.W.A.B.
CREW HET LIGHTING SECTION.	1	19/083	137	191	120	V.C.	L.C. S.W.A.B.
ENGINE ROOM LIGHTING SECTION.	1	7/064	53	75	144	V.C.	L.C. S.W.A.B.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	35	75	132	V.C.	L.C.
NAVIGATION LIGHTS	1	7/064	19	42	132	V.C.	L.C.
LIGHTING AND HEATING							
UPPER BRIDGE DECK LIGHTING D.B.	1	7/044	14.8	42	108	V.C.	L.C.
BRIDGE DECK LIGHTING D.B. PORT	1	7/044	15.6	42	84	V.C.	L.C.
BRIDGE DECK LIGHTING D.B. STBD.	1	7/044	18	42	54	V.C.	L.C.
MID. CARGO LIGHTING D.B.	1	7/029	10	15	10	V.C.	L.C.
CREW LIGHTING D.B. PORT.	1	7/044	7.2	42	78	V.C.	L.C.
CREW LIGHTING D.B. STBD.	1	7/044	7.2	42	180	V.C.	L.C.
CREW LIGHTING D.B. HET.	1	7/044	15	42	204	V.C.	L.C.
POOP DECK LIGHTING D.B. PORT	1	7/044	20	42	102	V.C.	L.C.
POOP DECK LIGHTING D.B. STARBOARD	1	7/044	8.9	42	150	V.C.	L.C.
ENGINE ROOM LIGHTING D.B. N°1	1	7/029	9	15	54	V.C.	L.C. S.W.A.B.
ENGINE ROOM LIGHTING D.B. N°2	1	7/029	9	15	126	V.C.	L.C. S.W.A.B.
ENGINE ROOM LIGHTING D.B. N°3	1	7/029	12.5	15	108	V.C.	L.C. S.W.A.B.
ENGINE ROOM LIGHTING D.B. N°4	1	7/029	12.5	15	188	V.C.	L.C. S.W.A.B.
GYRO.	1	7/029	10	15	50	V.C.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
MIDSHIP THERMOTANK	1	4	1	7/044	33	42	168	V.C.	L.C.
HET VENT FAN	1	4	1	7/044	33	42	120	V.C.	L.C.
MIDSHIP BOAT WINCHES	2	2	1	7/044	16.7	42	180	V.C.	L.C.
HET BOAT WINCHES	2	2	1	7/044	16.7	42	268	V.C.	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. *J. Shanks* Electrical Engineers. Date 26/11/45

COMPASSES.

Minimum distance between electric generators or motors and standard compass..... TWENTY FEET.

Minimum distance between electric generators or motors and steering compass..... TWENTY FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 19 Ampères 9 feet from standard compass 7 feet from steering compass.

A cable carrying 28 Ampères LED INTO feet from standard compass LED INTO 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.

BLYTHWOOD SHIPBUILDING CO., LTD.

*Audrey D. Brown* Builder's Signature. Date 28/11/45  
 SECRETARY

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..... 12<sup>TH</sup> JUNE 1945

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 M.O.W.T. Specification have been carried out. The materials and workmanship are good.*

*Noted  
 L.F.  
 10/1/46.*

Total Capacity of Generators..... 60 Kilowatts.

The amount of Fee ... ..	£ 28 : 10 :	When applied for,
SPECIFICATION FEE	£ 7 : 2/6	29.11.1945
Travelling Expenses (if any)	£ - : - :	When received,
		.....19.....

*J. M. Cardina*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute..... GLASSGOW 28 DEC 1945

Assigned..... SEE ACCOMPANYING MACHINERY REPORT.

5m.4.33.—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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