

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.

Date of writing Report. 27-11-1946

When handed in at Local Office.

4 DEC 1946

Port of. Sunderland.

No. in Survey held at. Sunderland.

Date, First Survey. 20-8-46

Last Survey. 27-11-1946

Reg. Book.

(Number of Visits. 17)

M.V. "BRITISH ENTERPRISE"

Built at. Sunderland.

By whom built. Wm. Dorriford &amp; Sons Ltd

Yard No. 738

When built. 1946

Owners. The British Tanker Co. Ltd

Port belonging to. London

Electrical Installation fitted by. Campbell &amp; Scherwood Ltd

Contract No. 738

When fitted. 1946

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. No

RADAR - Yes

Have plans been submitted and approved. Yes

System of Distribution. Air-wire insulated

Voltage of supply for Lighting. 110

Heating. -

Power. 110

Direct or 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. 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. -

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. Nos 1 &amp; 2 forward of Main engine; No 3 on raised deck

Starboard of Engine 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. On raised platform above Nos 1 &amp; 2 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. Heavy "Sindensip"

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. A triple-pole (one pole for equaliser) air-break circuit breaker fitted with 0/2 R/V. Current tripping devices with time-lag control.

and for each outgoing circuit. a double-pole 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. 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. E lamps connected to E through m.v. &amp; 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. 300

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. 25 A

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. 7 lb.

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

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. 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. in machinery spaces, along deck gangways, forecabin, V.C.L.C.A.B. cables clipped to steel framing or perforated metal tray fastened to the surface. In accommodation L.C. cables clipped to the surface and protected as required by wood or metal guards

Are all lead sheaths, armouring 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 effectively bushed. yes and with what material. lead or fibre Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. yes Emergency Supply, state position. Battery-fed lights in engine & boiler rooms and method of control. relay operated on failure of main supply or engine room fuses.

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. yes, are they adequately ventilated. yes what is the battery capacity in ampere hours. 2 of 80 A.H.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where 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 lighting fittings as approved installed in engine room and about deck spaces

and where are the controlling switches fitted. in engine room, are all fittings suitably ventilated. yes, are all fittings and accessories constructed and installed as per Rule. yes Searchlight Lamps, No. of 1, whether fixed or portable. yes, are their fittings as per Rule. yes 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. yes and vertically. yes 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. yes 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. yes 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	3	30	110	273	185	Single Cylinder Vertical Steam Engines		
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.	In the Circuit.	Rule.			
MAIN GENERATOR	1	30	37/085	273	296	46	V.C.	L.C.A.B.
" " EQUALISER			19/083	191	23		"	"
" " EQUALISER	2	30	37/083	273	296	48	"	"
" " EQUALISER			19/083	191	24		"	"
" " EQUALISER	3	30	37/083	273	296	136	"	"
" " EQUALISER			19/083	191	66		"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

#### MAIN DISTRIBUTION CABLES.

DESCRIPTION.	No. in Parallel Per Pole.	CONDUCTORS. Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
			In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
Midship Section Board 'B'	1	37/072	65	246	560	V.C.	L.C.A.B.
Off Section Board 'B'	1	19/044	30	87	134	"	"
Port Tank 'F'	1	19/044	76	135	204	"	"
" " 'G'	1	19/083	76	191	560	"	"
Engine Room Ltg. 'C'	1	19/044	50	87	70	"	"
Workshops 'E'	1	19/052	56	104	206	"	"
Oil Purifier 'D'	1	19/044	48	87	132	"	"

#### LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	19/044	25	87	560	V.C.	L.C.A.B.
NAVIGATION LIGHTS	1	7/044	5	42	560	"	"
LIGHTING AND HEATING							
Gen. Accommodation Ltg. 'H' 'B'	1	7/044	11.6	42	78	V.C.	L.C.
" " 'S'	1	7/044	10.8	42	78	"	"
Galley & Pantry	1	7/044	4	42	230	"	"
Gen. Accom. Upper Deck	1	7/044	14.2	42	78	"	"
" " 'B'	1	7/044	14.2	42	78	"	"
Forecabin Ltg. - off 'H'	1	7/044	7	42	78	"	L.C.B.B. & L.C.
Navigating Bridge	1	7/044	10	42	120	"	L.C.
Upper Bridge Ltg.	1	7/044	20	42	180	"	"
Bridge Ltg. 'S'	1	7/044	16	42	150	"	"
" " 'S'	1	7/044	15	42	138	"	"
Forecabin	1	7/044	9	42	50	"	"
Engine Room Ltg. - off 'H'	1	7/044	12/19	42	40/80	"	"
Machinery Space Ltg. - off 'H'	1	19/044	39	87	48	"	L.C.A.B.

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
Engine Room Vent Fan - P.	1	3	1	7/044	26	42	32	V.C.	L.C.B.
" " S.	1	3	1	7/044	26	42	72	"	"
" " Frick.	1	3	1	7/044	26	42	120	"	"
Brake Winch P.	1	2	1	7/044	18	42	60	"	"
" S.	1	2	1	7/044	18	42	132	"	"
Vent Fan P.	1	3	1	7/044	26	42	40	"	"
" S.	1	3	1	7/044	26	42	40	"	"
" Panting	1	1/2	1	3/029	5	5	40	V.I.R.	"
Brake Winch P.	1	2	1	7/044	18	42	140	V.C.	"
" S.	1	2	1	7/044	18	42	44	"	"
Gen. Motor	1	2	1	7/044	18	42	240	"	"
Priming Pump	1	1.75	1	7/044	15/20	42	380	"	"
Oil Purifier No. 1.	1	2	1	7/044	18	42	36	"	"
" 2	1	2	1	7/044	18	42	36	"	"
Grinder	1	1.5	1	7/044	16	42	65	"	"
Workshop Motor	1	4	1	7/064	35	45	50	"	"
Air Conditioning Fan.	1	1/2	1	3/029	5	5	50	"	"
Compressor	1	1/2	1	7/044	15	42	40	"	"
Galley Motor	1	1/2	1	2/002	4	5	60	PYROX.	

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.

Electrical Engineers.

Date 27th Nov 1946

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 12'

Minimum distance between electric generators or motors and steering compass 18'

The nearest cables to the compasses are as follows:—

A cable carrying 15 Ampères 10 feet from standard compass 10 feet from steering compass.

A cable carrying 15 Ampères 10 feet from standard compass 10 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 Wavy course in the case of the

standard compass, and Nil degrees on Wavy course in the case of the steering compass.

For and on behalf of

WILLIAM DOXFORD & SONS, Limited.

Builder's Signature.

Date 29-11-46

Is this installation a duplicate of a previous case? No If so, state name of vessel M.V. British Major

Plans. Are approved plans forwarded herewith Yes If not, state date of approval D. 28.2.46: 5.12.46

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 the "Rules for electrical equipment". The materials used are of good quality and design and the workmanship is good. On completion the equipment was operated on load with satisfactory results and the insulation resistance of each circuit was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Signed TRM 13.12.46

Total Capacity of Generators (3x30) 90 Kilowatts.

The amount of Fee ... £31. 10. 0. When applied for, 29 Nov 1946

Travelling Expenses (if any) £ : : When received, 19

Surveyor to Lloyd's Register of Shipping.

FRI 20 DEC 1946

Committee's Minute

Assigned Su F.E. mch. rpt.



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