

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

29 NOV 1948

Date of writing Report 12-11-1948 When handed in at Local Office 22-11-1948 Port of BELFAST

No. in Survey held at BELFAST Date, First Survey 5 Aug '48 Last Survey 9 Nov 1948  
 Reg. Book. (Number of Visits.....5.....)

90216 on the M.V. "BRITISH STRENGTH" Tons { Gross 8579  
 Net 4935

Built at BELFAST By whom built HARLAND & WOLFF LTD. Yard No. 1365 When built 1948

Owners BRITISH TANKER COY Port belonging to LONDON

Electric Light Installation fitted by HARLAND & WOLFF LTD. Contract No. 1365 When fitted 1948

Is the Vessel fitted for carrying Petroleum in bulk YES

System of Distribution TWO WIRE

Pressure of supply for Lighting 110 volts, Heating - volts, Power 110 volts.

Direct or Alternating Current, Lighting DIRECT Power DIRECT

If alternating current system, state frequency of periods per second -

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off YES

Generators, do they comply with the requirements regarding temperature rise YES, are they compound wound YES

are they over compounded 5 per cent. YES, if not compound wound state distance between each generator -

Where more than one generator is fitted are they arranged to run in parallel YES, is an adjustable regulating resistance fitted in series with each shunt field YES

Have certificates of test results for machines under 100 kw. been submitted and approved YES Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing NONE FITTED

Have certificates for generators under 100 kw. been supplied and approved YES

Are all terminals accessible, clearly marked, and furnished with sockets YES, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched YES

Are the lubricating arrangements of the generators as per Rule YES

Position of Generators MOTOR ROOM TANK TOP STARBOARD, is the ventilation in way of the generators satisfactory YES are they clear of all inflammable material YES if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the generators - and -

are the generators protected from mechanical injury and damage from water, steam or oil YES, are their axes of rotation fore and aft YES

Earthing, are the bedplates and frames of the generating plant efficiently earthed YES are the prime movers and their respective generators in metallic contact YES

Main Switch Boards, where placed MOTOR ROOM PLATFORM STARBOARD

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard -

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes YES, are they protected from mechanical injury and damage from water, steam or oil YES, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards - and -

are they constructed wholly of durable, non-ignitable non-absorbent materials YES, is all insulation of high dielectric strength and of permanently high insulation resistance YES

is it of an approved type YES, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework YES, is the non-hygroscopic insulating material of an approved type YES, and is the frame effectively earthed YES

Are the fittings as per Rule regarding: - spacing or shielding of live parts YES, accessibility of all parts YES, absence of fuses on back of board YES, temperature rise of omnibus bars YES, individual fuses to voltmeter, pilot or earth lamp YES, are moving parts of switches alive in the "off" position NO are all screws and nuts securing connections effectively locked YES are any fuses fitted on the live side of switches NO

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

200 amp. D.P. Circuit Breaker with of, r/l & Reverse current protection & equaliser switch. D.P. Switches & Fuses.

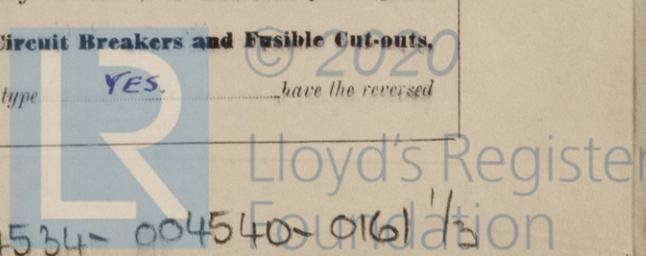
Are turbine driven generators fitted with emergency trip switch as per rule - Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material YES Instruments on main switchboard 3 ammeters 2

voltmeters - synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection YES

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

2 lamp system with 2 S.P. switches and fuses Switches, Circuit Breakers and Fusible Cut-outs.

do these comply with the requirements of the Rules. YES are the fusible cutouts of an approved type YES have the reversed



MISCELLANEOUS

Port of

Continuation of Report No.

dated

on the

DESCRIPTION	No. OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT IN CIRCUIT	MAXIMUM AMPERES RULE	Approx. length Lead & return in feet	INSULATED WITH	HOW PROTECTED
		No. PER POLE	Total Nominal Area per pole sq. inches	No.	DIAMETER					
PANTRY EX. FAN	1	1	0.002	3	.029	1.85	5	200	V.C.	L.S.A.B.
GALLEY EX. FAN STAR	1	1	0.002	3	.029	1.75	5	150		"
PORT.	1	1	0.002	3	.029	1.75	5	108		"
REFRIG. M/CY EX. FAN.	1	1	0.002	3	.029	2.7	5	180		L.S.A.B.
HOSPITAL AIR CONDITIONING PLANT	1	1	0.002	3	.029	3.2	5	80		L.S.A.B.
FAN PLANT	1	1	0.007	7	.036	14.0	28	60		"
REFRIG. CABINET.	1	1	0.003	3	.036	4.0	10	84		"
CENTRIFUGAL OIL PURIFIER	1	1	0.04	19	.052	61.5	104	82		L.S.A.B.
CENTRIFUGAL OIL CALORIFIER	1	1	0.04	19	.052	61.5	104	82		"
LUB. OIL PURIFIER	1	1	0.01	7	.044	25.1	42	150		"
ENGINE RM. CRANE	1	1	0.01	7	.044	26.5	42	100		"
GRINDER	1	1	0.01	7	.044	17.5	42	100		"
REFRIG. PLANT.	4	1	0.0225	7	.064	45	75	320		L.S.A.B.
GALLEY RANGE COMP.	1	1	0.002	3	.029	2.6	5	100		L.S.A.B.
BOAT WINCH PORT. MID	1	1	0.0225	7	.064	65	75	116		L.S.A.B.
" " STAR "	1	1	0.0225	7	.064	65	75	160		"
" " PORT. AFT.	1	1	0.0225	7	.064	65	75	180		"
" " STAR AFT.	1	1	0.0225	7	.064	65	75	110		L.S.A.B.
FUEL OIL PURIFIER	1	1	0.0225	7	.064	25.1	42	90		"
PURIFIED FUEL OIL	1	1	0.003	3	.036	4.0	10	80		L.S.A.B.

current protection devices been tested under working conditions. YES are all fuses labelled as per rule. YES

**Joint Boxes, Section and Distribution Boards,** is the construction, protection, insulation, material, and position of these as per rule. YES

**Cables:** Single, twin, concentric, or multicore. Single are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules. YES

If the cables are insulated otherwise than as per Rule, are they of an approved type. — **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load. 4-7 Volts **Cable Sockets,** are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets. YES **Paper Insulated and Varnished Cambrie Insulated Cables,** If conductors are paper or varnished cambrie insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound. YES or waterproof insulating tape. YES **Cable Runs,** are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable 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, bathrooms and lavatories lead covered or run in conduit. LEAD COVERED

**Support and Protection of Cables,** state how the cables are supported and protected. L.S.A.B. Cable clipped to steel plating

If cables are run in wood casings, are the casings and caps secured by screws. —, are the cap screws of brass. —, are the cables run in separate grooves. — If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII. YES

**Refrigerated Chambers,** are the cables and fittings in accordance with the special requirements. YES

**Joints in Cables,** state if any, and how made, insulated, and protected. —

**Watertight Glands and Deck Tubes,** are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. YES **Bushes in Beams and Non-watertight Partitions,** where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed. YES state the material of which the bushes are made. LEAD

**Earthing Connections,** state what earthing connections are fitted and their respective sectional areas. — are their connections made as per Rule. —

**Alternative Lighting,** are the groups of lights in the propelling machinery space arranged as per Rule. YES **Emergency Supply,** state position and method of control of the emergency supply and how the generator is driven. —

**Navigation Lamps,** are these separately wired. YES, controlled by separate switch and separate fuses. YES, are the fuses double pole. YES are the switches and fuses grouped in a position accessible only to the officers on watch. YES

has each navigation lamp an automatic indicator as per Rule. YES **Secondary Batteries,** are they constructed and fitted as per Rule. YES are they ventilated as per Rule. YES

**Fittings,** are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight. YES are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected. CAST IRON FITTING WITH THICK GLASS FRONT/PIECE

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected. FLAME PROOF FITTINGS WHERE APPLICABLE, how are the cables led. L.S.A.B. CABLES CLIPPED TO BEAMS

where are the controlling switches situated. NON-DANGEROUS POSITIONS

are all fittings suitably ventilated. YES, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials. YES

**Heating and Cooking Appliances,** are they constructed and fitted as per Rule. — are air heaters constructed and fitted as per Rule. YES

**Searchlight Lamps, No. of** 1 whether fixed or portable. PORTABLE, are their fittings as per Rule. YES

**Motors,** are their working parts readily accessible. YES, are the coils self-contained and readily removable for replacement. YES are the brushes, brush holders, terminals and lubricating arrangements as per Rule. YES, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material. YES, are they protected from mechanical injury and damage from water, steam or oil. YES are their axes of rotation fore and aft. YES, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type. — if not of this type, state distance of the combustible material horizontally or vertically above the motors. — and — have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing. — have certificates for all motors for essential services been supplied and approved. YES **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule. YES **Lightning Conductors,** where lightning conductors are required, are these fitted as per Rule. YES **Ships carrying Oil having a Flash Point less than 150° F.** Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings. YES are all fuses of the fitted cartridge type. YES are they of an approved type. YES If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces. YES **Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule. YES are they suitably stored in dry situations. 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	75	110	682	500	STEAM DRIVEN		
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	1	1.5	91	.103	682 ✓	738	No. 1 100 - 2 220	V.C.	L.S.A.B.
EQUALISER CONNECTIONS ...	1	0.4	61	.093	-	464	No. 1 50 - 2 60	"	"
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (MOTOR GENERATOR)									
ENGINE ROOM ...	1	0.0225	7	.064	70 ✓	75	120	"	"
SECTION No. 1	1	0.0225	7	.064	55 ✓	75	120	"	"
SECTION No. 2	1	0.01	7	.044	30 ✓	42	45	"	"
SECTION No. 12	1	0.01	7	.044	30 ✓	42	45	"	"
AUXILIARY SWITCHBOARDS									
MIDSHIP CADAR & WIRELESS	1		37	.093	40 ✓	343	520	"	"
POWER & LIGHTING	1		37	.093	40 ✓	343	520	"	"
HANDLAMP CHARGING PANEL	1	0.003	3	.036	15 ✓	10	300	"	"
SECTION BOX No. 1	1	0.04	19	.052	25 ✓	104	140	"	"
BOAT WINCH PANEL	1	0.04	19	.052	25 ✓	104	140	"	"
SECTION BOX No. 2	1	0.0225	7	.064	20 ✓	75	120	"	"
EM. LIG. BATTERY CHG. PANEL	1	0.0045	7	.029	8 ✓	15	40	"	"
SW. & FUSE BOXES No. 1	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 2	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 3	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 4	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 5	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 6	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 7	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 8	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 9	1	0.01	7	.044	20 ✓	42	45	"	"
SECTION No. 10	1	0.01	7	.044	20 ✓	42	45	"	"
WIRELESS	1	0.0225	7	.064	30 ✓	75	200	"	"
SEARCHLIGHT	1	0.04	19	.052	25 ✓	104	520	"	"
MASTHEAD LIGHT MAIN MAST	1	0.002	3	.029	0.2 ✓	5	60	"	"
MASTHEAD LIGHT FOREMAST	1	0.002	3	.029	0.2 ✓	5	40	"	"
SIDE LIGHTS	1	0.002	3	.029	0.2 ✓	5	20	"	"
COMPASS LIGHTS	1	0.002	3	.029	0.2 ✓	5	20	"	"
POOP LIGHTS									
CARGO LIGHTS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS	2	1	0.003	3	.036	9.8 ✓	10	56	Rubber	L.S.A.B.
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	0.04	19	.052	30 ✓	104	60	Rubber	L.S.A.B.
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR LATHE	1	1	0.01	7	.044	25.8 ✓	42	64	Rubber	L.S.A.B.
VENTILATING FANS										
No. 1	1	1	0.007	7	.036	17.5 ✓	28	90	Rubber	L.S.A.B.
No. 2	1	1	0.007	7	.036	17.5 ✓	28	90	"	"
No. 3	1	1	0.01	7	.044	24 ✓	42	220	"	L.S.A.B.
No. 4	1	1	0.01	7	.044	24 ✓	42	226	"	"
ENGINE RM. SUPPLY FAN	1	1	0.0045	7	.029	12.4 ✓	15	140	"	"
STORES FAN	1	1	0.003	3	.036	5.4 ✓	10	90	"	L.S.A.B.

The Electrical Equipment is installed in accordance with the approved plans.  
 All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
 The foregoing is a correct description.

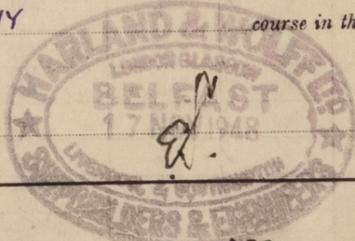


Electrical Engineers.

Date 17. 11. 48.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 20 feet from w/r office cabin fan.  
 Minimum distance between electric generators or motors and steering compass 22 feet from w/r office cabin fan.  
 The nearest cables to the compasses are as follows:—  
 A cable carrying 0.2 Ampères ON feet from standard compass 10 feet from steering compass.  
 A cable carrying 0.2 Ampères 10 feet from standard compass ON feet from steering compass.  
 A cable carrying 25 Ampères 12 feet from standard compass 8 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.



Builder's Signature.

Date

Is this installation a duplicate of a previous case YES. If so, state name of vessel "BRITISH SECURITY"

General Remarks (State quality of workmanship, opinions as to class, etc.) The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. Materials and workmanship are good.

Noted ent 15/12/48

Total Capacity of Generators 150 Kilowatts.

The amount of Fee ... £ 62 : 10 : 26/11/48  
 Travelling Expenses (if any) £ — : — : —

R. I. Hutchison  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 17 DEC 1948

Assigned

See P.C. mchly. opt.



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2m. 12. 36.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.