

REPORT ON ELECTRICAL EQUIPMENT.

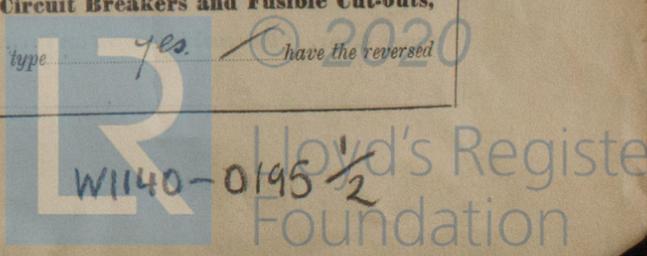
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JAN 6 1938

Date of writing Report 29. 12. 1937 When handed in at Local Office S. 1. 10³⁸ Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 8-10-37 Last Survey 23-12-1937
 Reg. Book. 21796 on the MV. "British Security" (Number of Visits 7)
 Built at Glasgow By whom built Harland & Wolff Ltd Yard No. 974G When built 1934
 Owners British Tanker Co. Port belonging to London
 Electric Light Installation fitted by Harland & Wolff Ltd Contract No. 974G When fitted 1934
 Is the Vessel fitted for carrying Petroleum in bulk Yes.

Tons { Gross 8470
 Net 4979

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 -
 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 in engine room, 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 near to generators
 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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework SINDANYO, 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 D.P. circuit breaker with interlocked equaliser switch and fitted with O/L & R/C trips — for each 30 K.W. generator. D. Psinitel and fuses for 8 Kw. generator and each outgoing circuit.
 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 - **Instruments** on main switchboard 12 ammeters 3
 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 earth lamps
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 -



current protection devices been tested under working conditions yes ✓

construction, protection, insulation, material, and position of these as per rule yes ✓

Cables: Single, twin, concentric, or multicore single & twin are the cables insulated and protected as per Tables IV, V, X or XI of the Rules yes ✓

If the cables are insulated otherwise than as per Rule, are they of an approved type yes ✓

any point of the installation under maximum load 4.5 volts ✓

area of 0.04 square inch and above provided with soldering sockets yes ✓

If conductors are paper or varnished cambric 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 ✓

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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit yes ✓

Support and Protection of Cables, state how the cables are supported and protected main: L.C.A.B. in galv. tubing run on fore-off gangways. Circuiting: machy spaces L.C.A.B. accom. L.C.B. clipped.

If cables are run in wood casings, are the casings and caps secured by screws yes ✓, are the cap screws of brass yes ✓, are the cables run in separate grooves yes ✓

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 none ✓

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 Lead covering and arming earthed by means of bonding glands & clips.

are their connections made as per Rule yes ✓

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 yes ✓

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 ✓

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 yes ✓

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Fittings at top of pump rooms in special gastight fittings. in gastight tubing outside pumprooms.

where are the controlling switches situated in accommodation amidships.

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 yes ✓, are air heaters constructed and fitted as per Rule yes ✓

Searchlight Lamps, No. of Wiring only, whether fixed or portable yes ✓, are their fittings as per Rule yes ✓

Arc Lamps, other than searchlight lamps, No. of yes ✓, are their live parts insulated from the frame or case yes ✓, 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 yes ✓

if not of this type, state distance of the combustible material horizontally or vertically above the motors yes ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing 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 filled 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 type approved by the Home Office yes ✓

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule yes ✓

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Amps.	Revs. per Min.		Fuel Used	Flash Point of Fuel
MAIN	2	30	110	273	550	Oil engine / Steam engine	Diesel oil	Above 150° F
AUXILIARY	1	8	110	73	750	Steam engine		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		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			
MAIN GENERATOR	1	.40	61	.093	273	288	68	Rubber	L.C.A.B.
EQUALISER CONNECTIONS	1	.15	37	.072	-	152	34	"	"
AUXILIARY GENERATOR	1	.06	19	.064	73	83	44	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	.0225	7	.064	40	46	80	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS	1	.06	19	.064	61	83	600	"	L.C.A.B. in tubing
FOK'D & MIDSHIP NAVIGATION D.B.	1	.0225	7	.064	19	46	720	"	"
AFT LIGHTING	1	.0145	7	.052	30	37	290	"	"
ACCOMMODATION									
WIRELESS	1	.0145	7	.052	20	37	730	"	"
SEARCHLIGHT WIRING ONLY	1	.04	19	.052	60	64	1300	"	"
MASTHEAD LIGHT	1	.002	3	.029	36	48	440	"	L.C.B.
SIDE LIGHTS	1	.002	3	.029	36	48	50	"	"
COMPASS LIGHTS	1	.002	3	.029	20	28	30	"	"
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION	No. of Motors	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		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										
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	.06	19	.064	79	83	150	Rubber	L.C.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	1	1	.01	7	.044	25.5	31	130	"	"
WORKSHOP MOTOR										
VENTILATING FANS										
FORCED DRAUGHT FAN	1	1	.0225	7	.064	39	46	150	"	"
OIL PURIFIERS, D.B.	2	1	.06	19	.064	51.4	83	80	"	"
REFRG. MACHINE	1	1	.04	19	.052	64	64	150	"	"
THERMOTANK FANS, S.B.	1	1	.06	19	.064	79	83	600	"	"

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

For HARLAND AND WOLFF, LIMITED
R. J. G. [Signature]
Govan Secretary.

Electrical Engineers.

Date 30/12/37

COMPASSES.

Distance between electric generators or motors and standard compass 40 feet.

Distance between electric generators or motors and steering compass 30 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 18 Ampères led into feet from standard compass led into feet from steering compass.

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

A cable carrying 20 Ampères 27 feet from standard compass 22 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 all the / course in the case of the standard compass, and nil / degrees on all the / course in the case of the steering compass.

For HARLAND AND WOLFF, LIMITED
R. J. G. [Signature]
Govan Secretary.

Builder's Signature.

Date 30/12/37

Is this installation a duplicate of a previous case yes / If so, state name of vessel M.V. BROOMDALE

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

*Noted
last 7/1/38*

Total Capacity of Generators 68 Kilowatts.

The amount of Fee ... £ 29 : 6 : 5 JAN 1938

Travelling Expenses (if any) £ - : - : 14/1 1938

R. I. Turichison [Signature]
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 11 JAN 1938

Assigned *Su ocher & Co. report*

2m.f.34.—Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute.



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