

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

NE

Date of writing Report 27-10-1937 when handed in at Local Office 8-11-1937 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 1-9-37 Last Survey 27-10-1937
 (Number of Visits.....)

21838 on the M.V. "BROOMDALE" Tons { Gross 8334
 Net 4967

Built at Glasgow By whom built Harland & Wolff Ltd Yard No. 9736 When built 1937

Owners The Admiralty Port belonging to London

Electric Light Installation fitted by Harland and Wolff Contract No. 9736 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wire ✓ 110 volts, Heating — Power 110 volts.

Pressure of supply for Lighting 110 ✓ direct Power direct

Direct or Alternating Current, Lighting 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 ✓

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 ✓

Position of Generators In main engine room ✓, are the lubricating arrangements of the generators as per Rule yes ✓, 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 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 micaite 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 DP circuit breakers with interlocked equaliser switches, O.L. & R.C. trips for each 30 kw. generator. DP switch 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 —

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system yes ✓, earth lamps —

Switches, Circuit Breakers and Fusible Cut-outs, are the fusible cutouts of an approved type yes ✓, have the reversed —

do these comply with the requirements of the Rules yes ✓



current protection devices been tested under working conditions *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 2 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 *—*. **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load *A.5 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 Cambric Insulated Cables**.

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 *—*, or waterproof insulating tape *—*. **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 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 gale tubing run on fore aft gangway. Circuit wiring: machinery spaces L.C.A.B. Accom. L.C.B. clipped to steel & woodwork.*

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 *—*.

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 *Armouring and lead sheath efficiently bonded to steelwork of hull by means of 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 *—*.

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 *—*.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Top of pump room in special gaslight fittings*. how are the cables led *in gaslight tubing outside pump room*.

where are the controlling switches situated *in midship accommodation*.

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 *—*.

Searchlight Lamps, No. of *wiring only*. whether fixed or portable *—*. are their fittings as per Rule *—*.

Arc Lamps, other than searchlight lamps, No. of *—*. are their live parts insulated from the frame or case *—*. are their fittings as per Rule *—*.

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 where possible*. 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 *—*. **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 spars 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.	Ampères.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	30	110	273	13600	1, oil engine 1, 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 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	.40	61	.093	273	283	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. } DB, No. 2	1	.0225	7	.064	40	46	80	"	"
BOILER ROOM. } G, GA.									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
FOR'D MIDSHIP S.B.	1	.06	19	.064	61	83	600	"	L.C.A.B. in Tubing.
NAVIGATION D.B.	1	.0225	7	.064	19	46	720	"	"
AFT LIGHT.	1	.045	7	.052	25	37	290	"	"
WIRELESS	1	.0145	7	.052	20	37	730	"	"
SEARCHLIGHT <i>wiring only</i>	1	.04	19	.052	60	64	1300	"	"
MASTHEAD LIGHT	1	.002	3	.029	36	78	440	"	"
SIDE LIGHTS	1	.002	3	.029	36	78	50	"	L.C.B.
COMPASS LIGHTS	1	.002	3	.029	20	78	30	"	"
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
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										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR	1	1	.06	19	.064	49	83	150	Rubber	L.C.A.B.
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	1	1	.01	7	.044	25.5	31	130	"	"
VENTILATING FANS										
FORCED DRAUGHT FAN.	1	1	.0225	7	.064	39	46	150	"	"
OIL PURIFIERS. DBMI.	—	1	.06	19	.064	51.4	83	80	"	"
REFRIG. MACHINE.	1	1	.04	19	.052	64	64	150	"	"
THERMOTANK FAN. DB.	—	1	.06	19	.064	59.1	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. Allen

Electrical Engineers.

Date

Govan Secretary

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 20 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 any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

For HARLAND AND WOLFF, LIMITED

R. J. Allen

Builder's Signature.

Date

Govan Secretary

Is this installation a duplicate of a previous case yes. If so, state name of vessel M.V. *British Daring*

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. The materials and workmanship are good.

18/11/37

*Noted
12/11/37*

Total Capacity of Generators 68 Kilowatts.

The amount of Fee ... 29 : 6 : - 2.11. 1937

Travelling Expenses (if any) £ - : - : 8.11.37 10/11

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

Committee's Minute GLASGOW 9-NOV-37

Assigned SEE ACCOMPANYING MACHINERY REPORT



© 2020

Lloyd's Register Foundation