

Rpt. 13.

No. 60320

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

OCT 26 1938

Received at London Office

Date of writing Report 25. 10. 1938 When handed in at Local Office 25. 10. 38 Port of Glasgow.

No. in Survey held at Glasgow.

Date, First Survey 29. 6. 38 Last Survey 24. 10. 1938

Reg. Book.

(Number of Visits 5)

87261 on the M.V. BRITISH FIDELITY

Tons { Gross 8465  
Net 4906

Built at Glasgow

By whom built Harland &amp; Wolff Ltd

Yard No. 10109 When built 1938

Owners British Liners Co. Ltd.

Port belonging to London

Electric Light Installation fitted by Harland &amp; Wolff Ltd

Contract No. 10109 When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution Two wire

Pressure of supply for Lighting 110 volts, Heating 110 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 main 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 In main engine room.

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

D.P. circuit breakers with interlocked equalizer switch fitted with 1/2 1/4 kips. for each generator, D.P. switch &amp; fuses for each outgoing circuit.

Are turbine driven generators fitted with emergency trip switch as per rule Are cupboards or compartments containing switchboards composed of

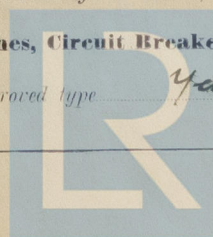
fire-resisting material or lined with approved material Instruments on main switchboard 12 ammeters 3

voltage meters 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

Barrel 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



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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 - 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 *5.7 1/2* ✓ **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 run on fore cast gangway in tubing. Machinery spaces L.C.A.B clipped. Accommodation L.C. clipped.* ✓

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 *have* ✓

**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 *Metallic sheathing surrounding of cables efficiently bonded earthed.* ✓

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* ✓

**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 Rooms in special gastight fittings.* ✓, how are the cables led *in gastight tubing outside of spaces.* ✓

where are the controlling switches situated *in accommodation bulkheads.* ✓

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** *one.* ✓, whether fixed or portable *portable* ✓, are their fittings as per Rule *Yes* ✓

**Are 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 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 ...	1	30	110	273	550	The system engine	Dist Oil	Above 150°F
AUXILIARY ...	1	30	110	273	600	One by oil engine		
EMERGENCY ...	1	8	110	73	750	Steam engine		
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.	Circuit.	Rule.			
MAIN GENERATOR ...	1	.40	61	.093	273	288	70	Rubber.	L.C.A.B.
EQUALISER CONNECTIONS ...	1	.15	37	.072	—	152	35	"	"
AUXILIARY GENERATOR ...	1	.06	19	.064	73	83	45	"	"
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...									
BOILER ROOM ...	1	.0225	7	.064	31.3	46	80	"	"
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION ...	1	.06	19	.064	40	83	600	"	"
MASTHEAD LIGHT ...	1	.0445	7	.052	25	37	280	"	"
NAVIGATION D.B. No. 1 ...	1	.0225	7	.064	15	46	700	"	"
WIRELESS ...	1	.0145	7	.052	20	37	700	"	"
SEARCHLIGHT ...	1	.04	19	.052	45	64	1300	"	"
MASTHEAD LIGHT ...	1	.002	3	.029	.36	7.8	450	"	L.C.B. in tubing
SIDE LIGHTS ...	1	.002	3	.029	.36	7.8	50	"	L.C.B.
COMPASS LIGHTS ...	1	.002	3	.029	.20	7.8	30	"	L.C.B.
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 ...										
ENGINE TURNING GEAR ...	1	1	.06	19	.064	40	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	26.5	31	130	"	"
VENTILATING FANS ...										
Ref. Machine ...	1	1	.04	19	.052	65	64	150	"	"
E.R. Crane ...	1	1	.01	7	.044	25.5	31	200	"	"
G.D. Fan ...	1	1	.0225	7	.064	39	46	150	"	"
CRANKCASE EX. FAN ...	1	1	.003	3	.036	11.2	12	100	"	"
OIL PURIFIERS ...	2	1	.007	7	.036	20.4	24	80	"	"
ACC. VENT. FANS D.B. AT-FA ...	—	1	.06	19	.064	77.6	83	520	"	"



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 30 ft

Distance between electric generators or motors and steering compass 25 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 20 Amperes 12 ft. from standard compass 12 ft. from steering compass.

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

A cable carrying 20 Amperes 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 1 1/2 degrees on any course in the case of the standard compass, and 1 1/2 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 No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electrical equipment of the vessel has been fitted on board under special survey, tested under full working conditions & found satisfactory. The materials and workmanship are good.

*Rb*  
*26/10/38*

*Wid*  
*26/10/38*

Total Capacity of Generators 64 Kilowatts.

The amount of Fee ... £ 29 : 6 : 0 When applied for, 25 OCT 1938

Travelling Expenses (if any) £ — : — : — When received, 4/11 1938

Committee's Minute GLASGOW 25 OCT 1938

Assigned SEE ACCOMPANYING MACHINERY REPORT.

*S. Haffner* *R. I. Murchison*  
Surveyors to Lloyd's Register of Shipping.