

# REPORT ON ELECTRICAL EQUIPMENT.

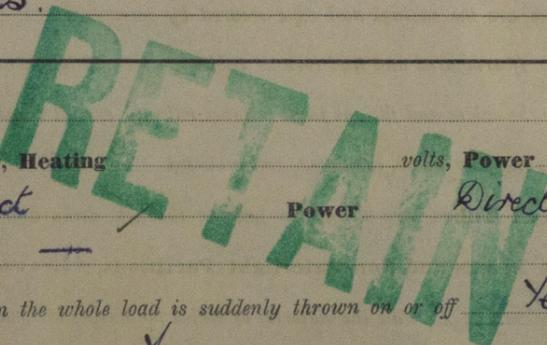
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

16 DEC 1936

Received at London Office

Date of writing Report 7<sup>th</sup> Dec 1936 When handed in at Local Office 14. 12. 1936 Port of Glasgow  
 No. in Survey held at Grenock Date, First Survey 12. 10. 36 Last Survey 4<sup>th</sup> Dec 1936  
 Reg. Book. 87483 on the MV "BRITISH TRIUMPH" (Number of Visits 3)  
 Tons { Gross 8402  
 Net 5008  
 Built at PORT GLASGOW By whom built Lithgows Ltd Yard No. 886 When built 1936  
 Owners BRITISH TANKER CO. LTD. Port belonging to LONDON.  
 Electric Light Installation fitted by The Sunderland Forge & Eng Co Ltd Contract No. 886 When fitted 1936  
 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 Engine Room Bottom Platform, 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 Engine Room on Special platform  
 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 no  
**Main Switchgear**, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Triple Pole of Circuit Breakers (one pole Equaliser) with R/C trips for each 30KW. Generator. DP switches & fuses for 3KW. Generator DP Switch & 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 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 —



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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 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 5.0 Volts

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 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 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 Mains L.C.A.B. in galvanized tubing secured to Fore & Aft Gangway Machinery Spaces, clipped to trays. Accommodation 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 Lead and armouring of cables efficiently bonded and earthed by means of clips or bonding glands, 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 Yes - in Pump Rooms and Bridge Space - Lamps in Gaslight Fittings, how are the cables led in Gaslight galvanized tubing

where are the controlling switches situated in accommodation midships

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 —, 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 Yes, 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                      | 2      | 30         | 110    | 273   | 600            | 1 Steam Engine; 1 Oil Engine |   |                      |
| 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. | In Circuit.                    | Rule. |  |                |                |
| MAIN GENERATOR                 | 2             | .150                                 | 19                     | .072      | 273                            | 282   | 70   | Varn Cambric   | L.C.B.         |
| EQUALISER CONNECTIONS          | 1             | .075                                 | 19                     | .072      | —                              | 141   | 35   | " "            | "              |
| AUXILIARY GENERATOR            | 1             | .04                                  | 19                     | .052      | 73                             | 94    | 130  | " "            | "              |
| EMERGENCY GENERATOR            |               |                                      |                        |           |                                |       |  |                |                |
| ROTARY TRANSFORMER             |               |                                      |                        |           |                                |       |  |                |                |
| ENGINE ROOM (Machinery Spaces) | 2             | .02                                  | 7                      | .044      | 38                             | 62    | 140  | Rubber         | L.C.A.B.       |
| BOILER ROOM (D.B. 7)           |               |                                      |                        |           |                                |       |  |                |                |
| AUXILIARY SWITCHBOARDS         |               |                                      |                        |           |                                |       |  |                |                |
| ACCOMMODATION                  |               |                                      |                        |           |                                |       |  |                |                |
| MIDSHIP & FORD Ltg. SECT. BOX  | 1             | .06                                  | 19                     | .064      | 41.2                           | 122   | 670  | Varn Cambric   | L.C.A.B.       |
| NAVIGATION DB 1                | 1             | .0145                                | 7                      | .052      | 11.9                           | 51    | 780  | " "            | "              |
| FORECASTLE DB 2                | 1             | .0145                                | 7                      | .052      | 9.5                            | 51    | 500  | " "            | "              |
| SALOON STARBD DB 3             | 1             | .003                                 | 1                      | .064      | 11                             | 12.9  | 100  | Rubber         | L.C.B.         |
| SALOON PORT DB 4               | 1             | .003                                 | 1                      | .064      | 11                             | 12.9  | 80   | " "            | "              |
| WIRELESS                       | 1             | .01                                  | 7                      | .044      | 20                             | 38    | 870  | Varn Cambric   | L.C.A.B.       |
| SEARCHLIGHT (Wiring only)      | 1             | .0225                                | 7                      | .064      | 60                             | 68    | 1460                                       | " "            | "              |
| MASTHEAD LIGHT                 | 1             | .003                                 | 1                      | .064      | 0.36                           | 12.9  | 460  | Rubber         | L.C.A.B.       |
| SIDE LIGHTS                    | 1             | .003                                 | 1                      | .064      | 0.36                           | 12.9  | 120  | " "            | L.C.B.         |
| COMPASS LIGHTS                 | 1             | .003                                 | 1                      | .064      | 0.18                           | 12.9  | 40   | " "            | "              |
| SENIOR ENGRS Accom DB 5        | 1             | .01                                  | 7                      | .044      | 17.5                           | 31    | 336  | Rubber         | L.C.A.B.       |
| JUNIOR ENGRS Accom DB 6        | 1             | .01                                  | 7                      | .044      | 7.8                            | 31    | 96   | " "            | L.C.B.         |
| ARC LAMPS                      |               |                                      |                        |           |                                |       |  |                |                |
| HEATERS                        |               |                                      |                        |           |                                |       |  |                |                |

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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             | .04                                  | 19                     | .052      | 80                             | 94    | 240  | Varn Cambric   | L.C.A.B.       |
| ENGINE REVERSING GEAR      |                |               |                                      |                        |           |                                |       |  |                |                |
| LUBRICATING OIL PUMPS      |                |               |                                      |                        |           |                                |       |  |                |                |
| OIL FUEL TRANSFER PUMP     |                |               |                                      |                        |           |                                |       |  |                |                |
| WINDLASS                   |                |               |                                      |                        |           |                                |       |  |                |                |
| WINCHES, FORWARD           |                |               |                                      |                        |           |                                |       |  |                |                |
| CRANK CASE FAN             | 1              | 1             | .007                                 | 7                      | .036      | 11.2                           | 24    | 180  | Rubber         | L.C.A.B.       |
| WINCHES, AFT               |                |               |                                      |                        |           |                                |       |  |                |                |
| FORCED DRAUGHT FAN         | 1              | 1             | .0145                                | 7                      | .052      | 37                             | 37    | 160  | " "            | "              |
| STEERING GEAR—             |                |               |                                      |                        |           |                                |       |  |                |                |
| (a) MOTOR GENERATOR        |                |               |                                      |                        |           |                                |       |  |                |                |
| (b) MAIN MOTOR             |                |               |                                      |                        |           |                                |       |  |                |                |
| WORKSHOP MOTOR             | 1              | 1             | .007                                 | 7                      | .036      | 24                             | 24    | 300  | " "            | "              |
| VENTILATING FANS SECT. B01 | 1              | 1             | .04                                  | 19                     | .052      | 32                             | 94    | 670  | Varn Cambric   | "              |
| " " SECT. B02              | 1              | 1             | .04                                  | 19                     | .052      | 40                             | 94    | 64   | " "            | "              |
| FEED TO SB3 ER MOTORS      | 1              | 1             | .04                                  | 19                     | .052      | 54.5                           | 64    | 165  | Rubber         | "              |
| REFRIG. MACHINE            | 1              | 1             | .0225                                | 7                      | .064      | 64                             | 68    | 280  | Varn Cambric   | "              |
| CRANE MOTOR                | 1              | 1             | .007                                 | 7                      | .036      | 24                             | 24    | 180  | Rubber         | "              |
| SEPARATORS                 | 3              | 1             | .007                                 | 7                      | .036      | 21                             | 24    | 60   | " "            | "              |
| OIL PUMP                   | 1              | 1             | .003                                 | 1                      | .064      | 5.25                           | 12.9  | 60   | " "            | "              |

RETAIN

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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.

P. Pro. THE SUNDERLAND FORGE & ENG. CO. LTD. Electrical Engineers. Date 10/12/36.

*J. Shank*

COMPASSES.

Distance between electric generators or motors and standard compass 210 Feet

Distance between electric generators or motors and steering compass 208 Feet

The nearest cables to the compasses are as follows:—

A cable carrying 11.9 Ampères 12 feet from standard compass 8 feet from steering compass.

A cable carrying 0.18 Ampères lead into feet from standard compass lead into 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 any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

LITHGOWS LIMITED.

*John M. Fullerton* Secretary

Builder's Signature.

Date 12/12/36.

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 this

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

*J. H. 14/12/36*

Noted  
Shun  
16.12.36

Total Capacity of Generators 68 Kilowatts.

The amount of Fee ... £ 29 : 6 : 0 at 1/10

Travelling Expenses (if any) £ : 9/- : 18.12.36

*A. Staffner*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 15 DEC 1936

Assigned SEE ACCOMPANYING MACHINERY REPORT.

2m.53. Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute



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