

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

13 NOV 1941  
Received at London Office.

Date of writing Report 29<sup>th</sup> October 41 When handed in at Local Office 10. 11. 41 Port of GLASGOW  
 No. in Survey held at GLASGOW Date, First Survey 27. 8. 41 Last Survey 28. 10. 41  
 Reg. Book. 37802 on the M.V. "NOTTINGHAM." Tons { Gross 6476  
 Net 5022  
 Built at GLASGOW By whom built ALEX STEPHEN & SONS LTD. Yard No. 576 When built 1941  
 Owners FEDERAL S.N. CO. LTD. Port belonging to LONDON  
 Electrical Installation fitted by CAMPBELL & ISHERWOOD LTD. Contract No. — When fitted 1941  
 Is vessel fitted for carrying Petroleum in bulk No Is vessel equipped with D.F. YES E.S.D. YES Gy.C. — Sub.Sig. —

Have plans been submitted and approved YES System of Distribution TWO WIRE Voltage of supply for Lighting 220

Heating 220 Power 220 Direct or Alternating Current, Lighting DC Power DC If Alternating Current state frequency — Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off YES Are turbine emergency governors fitted with a trip switch as per Rule — Generators, are they compound wound YES, are they level compounded under working conditions YES

if not compound wound state distance between generators — and from switchboard — Where more than one generator is fitted are they arranged to run in parallel YES, are shunt field regulators provided YES Is the compound winding connected to the negative or positive pole

POSITIVE Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing YES Have certificates of test for machines under 100 kw. been supplied YES and the results found as per rule YES Are the lubricating arrangements and the construction of the generators as per rule YES Position of Generators IN ENGINE ROOM.

is the ventilation in way of generators satisfactory YES are they clear of inflammable material YES, if situated near unprotected combustible material state distance from same horizontally — and vertically —, are the generators protected from mechanical injury and damage from water, steam and oil YES, are the bedplates and frames earthed YES and the prime movers and generators in metallic contact YES Switchboards, where are main switchboards placed NEAR GENERATORS.

are they in accessible positions, free from inflammable gases and acid fumes YES, are they protected from mechanical injury and damage from water, steam and oil YES, if situated near unprotected combustible material state distance from same horizontally — and vertically —, what insulation material is used for the panels SINDANYO, if of synthetic insulating material is it an Approved Type YES, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule — Is the frame effectually earthed YES

Is the construction as per Rule YES, including accessibility of parts YES, absence of fuses on the back of the board YES, individual fuses to pilot and earth lamps, voltmeters, etc., YES locking of screws and nuts YES, labelling of apparatus and fuses YES, fuses on the "dead" side of switches YES Description of Main Switchgear for each generator and arrangement of equaliser switches TRIPLE POLE

CIRCUIT BREAKER WITH OVERLOAD AND REVERSE CURRENT RELEASES

and for each outgoing circuit DOUBLE POLE CIRCUIT BREAKERS WITH OVERLOAD RELEASES FOR WINCH CIRCUITS, REFRIGERATOR CIRCUIT AND AIR COMPRESSOR CIRCUITS — REMAINDER DOUBLE POLE SWITCHES AND FUSES.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 3

ammeters 2 voltmeters — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection YES Earth Testing, state means provided EARTH LAMPS.

Switches, Circuit Breakers and Fuses, are they as per Rule YES, are the fuses an approved type YES, are all fuses labelled as per Rule YES, are the reversed current protection devices connected on the pole opposite to the equaliser connection YES, have they been tested under working conditions YES. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule YES. Cables, are they insulated and protected as per the appropriate Tables of the Rules YES, if otherwise than as per Rule are they of an approved type -, state maximum fall of pressure between bus bars and any point under maximum load 11.8 Volts, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets YES. Are paper insulated and varnished cambric insulated cables sealed at the exposed ends YES with insulating compound - or waterproof insulating tape YES. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or 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, etc., lead covered YES or run in conduit -. State how the cables are supported and protected LEAD COVERED ARMoured AND BRAIDED - CLIPPED TO STEEL TRAY

Are all lead sheaths, armoring and conduits effectually bonded and earthed YES. Refrigerated chambers, are the cables and fittings as per Rule YES. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands YES, where unarmoured cables pass through beams, etc., are the holes effectively bushed YES and with what material LEAD. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule YES. Emergency Supply, state position - and method of control -.

Navigation Lamps, are they separately wired YES controlled by separate double pole switches YES and fuses YES. Are the switches and fuses in a position accessible only to the officers on watch YES, is an automatic indicator fitted YES. Secondary Batteries, are they constructed and fitted as per Rule -, are they adequately ventilated -.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof YES. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present No, if so, how are they protected -.

and where are the controlling switches fitted -, are all fittings suitably ventilated YES.

are all fittings and accessories constructed and installed as per Rule YES. Searchlight Lamps, No. of -, whether fixed or portable -.

are their fittings as per Rule -. Heating and Cooking, is the general construction as per Rule YES.

are the frames effectually earthed YES, are heaters in the accommodation of the convection type YES. Motors, are all motors constructed and installed as per Rule YES and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil YES, if situated near unprotected combustible material state minimum distance from same horizontally - and vertically -.

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing YES. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule YES. Control Gear and Resistances, are they constructed and fitted as per Rule YES. Lighting Conductors, where required are they fitted as per Rule YES. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with -, are all fuses of the cartridge type -.

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 -. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule YES, are they suitably stored in dry situations YES. Insulation Tests, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory 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 ...                  | 3      | 300        | 220    | 1364     | 465            | DIESEL ENGINE | OIL  | ABOVE 150°F          |
| EMERGENCY ...             |        |            |        |          |                |               |  |                      |
| ROTARY TRANSFORMER        |        |            |        |          |                |               |  |                      |

GENERATOR CABLES.

| DESCRIPTION.              | KILOWATTS. | CONDUCTORS.               |   | MAXIMUM CURRENT IN AMPERES. |       | APPROX. LENGTH (lead plus return feet). | INSULATED WITH. | HOW PROTECTED. |
|---------------------------|------------|---------------------------|---|-----------------------------|-------|---|-----------------|----------------|
|                           |            | No. in Parallel Per Pole. | Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm. | In the Circuit.             | Rule. |   |                 |                |
|                           |            |                           |   |                             |       |   |                 |                |
| MAIN GENERATOR ...        | 300        | 2                         | 91/03   | 1364                        | 1476  | 100                                     | V.C.            | L.C.A. + B.    |
| " " EQUALISER ...         |            | 1                         | 91/03   | 682                         | 738   | 50                                      | V.C.            | L.C.A. + B.    |
| EMERGENCY GENERATOR ...   |            |                           |   |                             |       |   |                 |                |
| ROTARY TRANSFORMER: MOTOR |            |                           |   |                             |       |   |                 |                |
| " " GENERATOR ...         |            |                           |   |                             |       |   |                 |                |

MAIN DISTRIBUTION CABLES.

| AUX. SWITCHBOARDS AND SECTION BOARDS ... |   |         |      |      |     |        |             |   |
|--|---|---------|------|------|-----|--------|-------------|---|
| MIDSHIP WINCH PANEL.                     | 1 | 19/083. | 191  | 191  | 132 | V.C.   | L.C.A. + B. |   |
| AFTER WINCH PANEL.                       | 1 | 37/072. | 213  | 244  | 306 | "      | "           | " |
| FORWARD WINCH PANEL.                     | 1 | 37/072. | 213  | 244  | 478 | "      | "           | " |
| REFRIG. SWITCHBOARD.                     | 4 | 61/103. | 2000 | 2160 | 240 | "      | "           | " |
| MACHINERY AUX. DIS. BOX.                 | 1 | 7/052.  | 33   | 57   | 120 | "      | "           | " |
| MACHINERY AUX. SECT. BOX.                | 1 | 7/044.  | 26   | 31   | 60  | RUBBER | "           | " |
| MACHINERY SPACE VENT. FANS.              | 1 | 7/064.  | 36   | 46   | 120 | "      | "           | " |
| MACHINERY SPACE SECT. BOARD.             | 1 | 7/064.  | 29   | 46   | 138 | "      | "           | " |

LIGHTING AND HEATING, ETC., CABLES.

|                                   |   |        |      |    |     |        |               |
|-----------------------------------|---|--------|------|----|-----|--------|---------------|
| WIRELESS ...                      | 1 | 7/044. | 25   | 31 | 120 | RUBBER | LEAD COVERED. |
| NAVIGATION LIGHTS ...             | 1 | 3/036. | 905  | 10 | 282 | "      | "             |
| LIGHTING AND HEATING ...          |   |        |      |    |     |        |               |
| ACCOMMODATION LIGHTING.           | 1 | 7/052. | 50   | 57 | 135 | V.C.   | L.C.A. + B.   |
| RADIATOR CIRCUIT DIST. BOX.       | 1 | 7/064. | 71   | 75 | 174 | V.C.   | "             |
| MACHINERY SPACE LIGHTING.         | 1 | 7/052. | 34   | 45 | 180 | RUBBER | "             |
| ACCOMMODATION LIGHTING DIST. BOX. | 1 | 7/036. | 17.5 | 24 | 126 | "      | "             |
| CARAO LIGHTING DIST. BOX.         | 1 | 7/044. | 31   | 31 | 180 | "      | "             |
| ACCOMMODATION FANS DIST. BOX.     | 1 | 7/044. | 19.8 | 31 | 138 | "      | "             |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. |   |        |     |     |     |        |             |
|--|-----|--------|---|--------|-----|-----|-----|--------|-------------|
| AIR COMPRESSORS.                       | 2   | 67     | 1 | 37/072 | 243 | 246 | 102 | V.C.   | L.C.A. + B. |
| WATER CIRCULATING PUMP.                | 2   | 12     | 1 | 7/052  | 45  | 57  | 150 | "      | "           |
| BRINE PUMP.                            | 1   | 12     | 1 | 7/052  | 45  | 57  | 84  | "      | "           |
| CO2 COMPRESSORS.                       | 2   | 160    | 2 | 37/083 | 581 | 892 | 114 | "      | "           |
| SALT WATER CIRCULATING PUMP.           | 1   | 36/58  | 1 | 37/072 | 216 | 246 | 180 | "      | "           |
| BALLAST PUMP.                          | 1   | 39/53  | 1 | 37/072 | 192 | 246 | 210 | "      | "           |
| GENERATOR COOLING PUMPS.               | 2   | 11/18  | 1 | 7/064  | 69  | 75  | 228 | "      | "           |
| FUEL OIL PUMP.                         | 1   | 11/18  | 1 | 7/064  | 69  | 75  | 156 | "      | "           |
| STEERING GEAR MOTORS.                  | 2   | 20/23  | 1 | 7/052  | 79  | 104 | 640 | "      | "           |
| PISTON COOLING PUMP.                   | 1   | 34/53  | 1 | 7/083  | 187 | 191 | 228 | "      | "           |
| JACKET COOLING PUMP.                   | 1   | 34/53  | 1 | 7/083  | 187 | 191 | 258 | "      | "           |
| LUB. OIL PUMP.                         | 1   | 11/18  | 1 | 7/064  | 69  | 75  | 174 | "      | "           |
| TURNING GEAR MOTOR.                    | 1   | 22     | 1 | 7/044  | 84  | 87  | 240 | "      | "           |
| GENERAL SERVICE PUMP.                  | 1   | 14/18  | 1 | 7/064  | 69  | 75  | 174 | "      | "           |
| BILGE PUMP.                            | 1   | 14/18  | 1 | 7/064  | 69  | 75  | 186 | "      | "           |
| BRINE PUMPS.                           | 3   | 3      | 1 | 7/029  | 13  | 15  | 90  | RUBBER | "           |
| BRINE PUMP.                            | 1   | 3      | 1 | 7/029  | 13  | 15  | 36  | "      | "           |
| BRINE PUMP.                            | 1   | 3 3/4  | 1 | 7/036  | 17  | 24  | 36  | "      | "           |
| OIL PURIFIERS.                         | 3   | 3      | 1 | 7/029  | 13  | 15  | 90  | "      | "           |
| OIL FUEL PRIMING PUMP.                 | 1   | 2      | 1 | 3/036  | 9   | 12  | 42  | "      | "           |
| OIL BURNING UNIT.                      | 1   | 1      | 1 | 3/029  | 5   | 7.8 | 72  | "      | "           |
| F.V. COOLING PUMPS.                    | 2   | 3      | 1 | 7/029  | 13  | 15  | 50  | "      | "           |
| FRESH WATER PUMP.                      | 1   | 3      | 1 | 7/029  | 13  | 15  | 150 | "      | "           |
| OIL TRANSFER PUMP.                     | 1   | 8      | 1 | 7/044  | 29  | 31  | 258 | "      | "           |

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.  
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.  
 The foregoing is a correct description.

*[Signature]*

Electrical Engineers. Date 1/11/44

COMPASSES.

Minimum distance between electric generators or motors and standard compass 200 FEET.

Minimum distance between electric generators or motors and steering compass 172 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 8 feet from standard compass 8 feet from steering compass.

A cable carrying 50 Ampères 30 feet from standard compass 38 feet from steering compass.

A cable carrying 191 Ampères 30 feet from standard compass 38 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 Alexander Stephen & Sons Limited Builder's Signature. Date 5 NOV 1941

Director

Is this installation a duplicate of a previous case YES If so, state name of vessel M.V. GLoucester.

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, 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.

*[Signature]*  
 25/11/44

*[Signature]*  
 10/11/44

Total Capacity of Generators 900 Kilowatts.

The amount of Fee ... £ 67 : 10 :  
 1/5 Gls. Acc = £ 54-0-0  
 1/5 Lon Acc = £ 13-10-0  
 Travelling Expenses (if any) £ 4 : 16 : 5  
 (Exps. Due Lon Acc)

When applied for 11 NOV 1941  
 When received 19

*[Signature]*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 11 NOV 1941

Assigned SEE ACCOMPANYING MACHINERY REPORT.

2m.10.33.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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