

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report... 1-8-1947. When handed in at Local Office... 9 Aug 1947. Port of... SUNDERLAND. Received at London Office... 2 AUG 1947

No. in Survey held at... SUNDERLAND. Reg. Book. Date, First Survey... 22-4-47 Last Survey... 31-7-1947 (Number of Visits... 8)

on the... S.S. "LAGOSIAN" Tons { Gross... 504.7 Net... 283.1

Built at... SUNDERLAND. By whom built... SHIPBUILDING CORP. Yard No. 11. When built... 1947

Owners... UNITED AFRICA CO. LTD. Port belonging to... LIVERPOOL

Electrical Installation fitted by... SUNDERLAND FORGE & ENGINEERING CO. Contract No. 11. When fitted... 1947

Is vessel fitted for carrying Petroleum in bulk... NO. Is vessel equipped with D.F. YES. E.S.D. YES. Gy.C. NO. Sub.Sig. NO. RADAR. NO

Have plans been submitted and approved... YES. System of Distribution... TWO WIRE INSULATED. Voltage of supply for Lighting... 110

Heating... Power... 110 Direct... Current, Lighting... YES Power... YES If Alternating Current state periodicity... Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off... YES Are turbine emergency governors fitted with a trip switch as per Rule... YES

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... NO, are shunt field regulators provided... YES

Is the compound winding connected to the negative or positive pole... NEGATIVE Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing... 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... INBOARD & OUTBOARD ON PORT SIDE ON ENG. RM. FLOOR LEVEL

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... ON PORT SIDE FACING AFT ON PLATFORM AGAINST ENG. RM. AFT BULKHEAD ABOVE 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

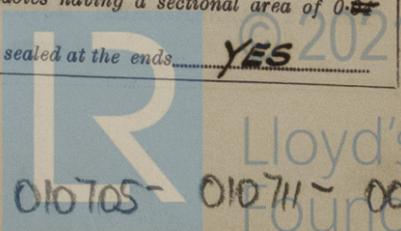
Description of Main Switchgear for each generator and arrangement of equaliser switches... DOUBLE POLE SINGLE THROW QUICK BREAK KNIFE SWITCH AND DOUBLE POLE FUSES.

and for each outgoing circuit... DOUBLE POLE DOUBLE THROW QUICK BREAK KNIFE SWITCH AND DOUBLE POLE FUSES.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES Instruments on main switchboard... 2 ammeters... 2 voltmeters... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection... Earth Testing, state means provided... EARTH LAMPS CONNECTED TO 'E' THRO SWITCHES & FUSES.

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. If circuit breakers are provided for the generators, at what overload current did they open when tested... are the reversed current protection devices connected on the pole opposite to the equaliser connection... have they been tested under working conditions, and at what current did they operate... 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... YES, state maximum fall of pressure between bus bars and any point under maximum load... < 6v, are the ends of all cables having a sectional area of 0.25 square inch and above provided with soldering sockets... YES Are paper insulated and varnished cambric insulated cables sealed at the 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 NO, if so, are they adequately protected —. Are cables in machinery spaces, galleys, laundries, etc., lead covered YES AND run in conduit YES. State how the cables are supported and protected L.C. CABLES FOR GENERATOR MAINS CLIPPED TO STEEL TRAY PLATES

V.I.R. CABLES IN ENGINE RM & TWEEN DECKS CARRIED THROUGH CONDUIT. L.C.  
CABLES IN ACCOMMODATION CLEATED TO WOOD GROUNDS.

Are all lead sheaths, armouring 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 —

what is the battery capacity in ampere hours —. 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 —

are the frames effectually earthed —, are heaters in the accommodation of the convection type —. 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 —. Are motors coupled to fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment —

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing —. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule —. Control Gear and Resistances, are they constructed and fitted as per Rule YES. Lightning Conductors, where required are they fitted as per Rule —. 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 —. Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships —. Are the cables lead covered as per Rule —. 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 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                      | 2      | 15         | 110    | 136      | 550            | STEAM ENGINE. | —  |                      |
| 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            | 15         | 1                         | 19/064   | 136                         | 135   | 21                                      | V.C.            | L.C.           |
| " " EQUALISER             |            |                           |  |                             |       |   |                 |                |
| EMERGENCY GENERATOR       |            |                           |  |                             |       |   |                 |                |
| ROTARY TRANSFORMER: MOTOR |            |                           |  |                             |       |   |                 |                |
| " " GENERATOR             |            |                           |  |                             |       |   |                 |                |

MAIN DISTRIBUTION CABLES.

| DESCRIPTION.                         | 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. |   |                 |                |
| AUX. SWITCHBOARDS AND SECTION BOARDS |                           |  |                             |       |   |                 |                |
| LIGHTING SECTION BOX MIDSHIPS S.1    | 1                         | 19/083   | 100                         | 118   | 340                                     | V.I.R.          | CONDUIT.       |
| ENGINEERS SECTION BOX S.2            | 1                         | 19/064   | 62                          | 83    | 100                                     | V.I.R.          | CONDUIT.       |
| AFT ACCOM. SECTION BOX S.3           | 1                         | 19/064   | 74                          | 83    | 340                                     | V.I.R.          | CONDUIT.       |
| VENTILATION SECTION BOX S.4          | 1                         | 19/064   | 76                          | 83    | 100                                     | V.I.R.          | CONDUIT.       |

LIGHTING AND HEATING, ETC., CABLES.

| DESCRIPTION.                             | 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. |   |                 |                |
| WIRELESS                                 | 1   | 7/044  | 10                          | 31    | 320                                     | V.I.R.          | CONDUIT.       |
| NAVIGATION LIGHTS                        | 1   | 7/044  | 10                          | 31    | 320                                     | V.I.R.          | CONDUIT.       |
| LIGHTING AND HEATING                     | ALTERNATIVE SOURCE OF SUPPLY FROM MIDSHIPS S.1. |  |                             |       |   |                 |                |
| MIDSHIPS S.1 To PORT BDG. LGHS D.2       | 1   | 7/044  | 19                          | 31    | 50                                      | V.I.R.          | L.C.           |
| " " " STBD " " D.3                       | 1   | 7/036  | 19                          | 24    | 20                                      | V.I.R.          | L.C.           |
| " " " PORT UPPER DK D.4                  | 1   | 7/036  | 20                          | 24    | 100                                     | V.I.R.          | L.C.           |
| " " " STBD " " D.5                       | 1   | 7/036  | 21.5                        | 24    | 100                                     | V.I.R.          | L.C.           |
| ENGINEERS S.2 To ENG. ACC. STBD DG       | 1   | 7/036  | 22.0                        | 24    | 60                                      | V.I.R.          | L.C.           |
| " " " " STBD D.7                         | 1   | 7/036  | 22.0                        | 24    | 20                                      | V.I.R.          | L.C.           |
| AFT ACC. S.3 To POOP DK. LGHS D.8        | 1   | 7/036  | 11.0                        | 24    | 60                                      | V.I.R.          | L.C.           |
| " " " " UPPER DK. AFT PT D.9             | 1   | 7/044  | 24.0                        | 31    | 60                                      | V.I.R.          | L.C.           |
| " " " " " STBD D.10                      | 1   | 7/044  | 24.0                        | 31    | 60                                      | V.I.R.          | L.C.           |
| MAIN SWBD To MACHINERY SPACE D.12        | 1   | 7/044  | 25.0                        | 31    | 40                                      | V.I.R.          |                |
| ENG. S.2 To AFT. CARGO LGH. D.13         | 1   | 7/044  | 10.0                        | 31    | 280                                     | V.I.R.          | CONDUIT.       |
| MIDSHIPS S.1 To FOR. CARGO LGHT. D.14    | 1   | 7/064  | 15.0                        | 46    | 320                                     | V.I.R.          | CONDUIT.       |
| ENG. S.2 To GALLEY DIS. BOX D.15         | 1   | 7/036  | 8.0                         | 24    | 60                                      | V.I.R.          | L.C.           |
| FRD. CARGO D.14 To FORECASTLE LGHT. D.11 | 1   | 7/064  | 5.0                         | 46    | 320                                     | V.I.R.          | CONDUIT.       |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | 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. |   |                 |                |
| REFRIG. MCHRY.                         | 1   | 5      | 1                         | 7/064  | 40.0                        | 46.0  | 300                                     | V.I.R.          | CONDUIT.       |
| THERMOTANK.                            | 1   | 3      | 1                         | 7/044  | 26.0                        | 31.0  | 220                                     | V.I.R.          | CONDUIT.       |
| THERMOTANK.                            | 2   | 1.5    | 1                         | 7/036  | 15.0                        | 24.0  | 60/100                                  | V.I.R.          | CONDUIT.       |
| ENG. RM. VENT FANS.                    | 2   | 1.5    | 1                         | 7/036  | 15.0                        | 24.0  | 80/120                                  | V.I.R.          | CONDUIT.       |

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.

*Sunderland Forge & Eng Co Ltd* Electrical Engineers. Date *5. 8. 1947*  
*H. S. Gurney*

COMPASSES.

Minimum distance between electric generators or motors and standard compass 10 FEET.

Minimum distance between electric generators or motors and steering compass 15 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 0.14 Ampères INSIDE standard compass 8 feet from steering compass.

A cable carrying 0.14 Ampères 8 feet from standard compass INSIDE 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 EVERY course in the case of the

standard compass, and NIL degrees on EVERY course in the case of the steering compass.

*W. Hutton*  
 SHIPBUILDING CORPORATION LTD. Builder's Signature. Date 7th August 1947.  
 (WEAR BRANCH)  
 per pro. JOSEPH L. THOMPSON & SONS, LTD.

Is this installation a duplicate of a previous case NO Commercial Secretary name of vessel \_\_\_\_\_

Plans. Are approved plans forwarded herewith NO. If not, state date of approval 13. 3. 1947.

Certificates. Are certificates of test for \_\_\_\_\_ generators forwarded herewith YES.

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 INSTALLED UNDER SPECIAL SURVEY AND THE

ARRANGEMENTS ARE IN ACCORDANCE WITH OR EQUIVALENT TO THOSE SHOWN ON THE APPROVED

PLANS AND THE SOCIETY'S RULES FOR ELECTRICAL EQUIPMENT.

THE MATERIALS USED ARE OF GOOD QUALITY AND THE WORKMANSHIP IS

GOOD.

A SPARE ARMATURE AND SPARE SET OF FIELD COILS FOR THE GENERATORS

ARE BEING SUPPLIED AS SOON AS POSSIBLE.

ON COMPLETION THE EQUIPMENT WAS OPERATED UNDER WORKING CONDITIONS

AND THE INSULATION RESISTANCE OF ALL CIRCUITS MEASURED AND FOUND GOOD.

THIS INSTALLATION IS, IN MY OPINION, SUITABLE FOR A CLASSED VESSEL.

Total Capacity of Generators 2 x 15 = 30 Kilowatts.

The amount of Fee ... £ 22 : 10 : When applied for, AUG 11 1947  
 SPECIFICATION. 5 : 12 : 6  
 Travelling Expenses (if any) £ : : When received.  
 .....19.....

*R. M. H. H.*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 26 SEP 1947

Assigned See F.E. mch. rpt.

5m. 4. 39.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)  
 M.L.D.

