

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) Received at London Office 13 SEP 1944

Date of writing Report.....19..... When handed in at Local Office... 26 SEP 1944... Port of... NEWCASTLE-ON-TYNE.

No. in Survey held at... WALKER-ON-TYNE... Date, First Survey... 15 August... Last Survey... 28 August 19... 44
Reg. Book. (Number of Visits..... 6.....)

on the... "EMPIRE LADY"..... Tons { Gross... 7046
Net... 4747

Built at... WALKER-ON-TYNE... By whom built... SHIPBUILDING CORP LTD. Yard No... 8... When built... 1944

Owners..... Port belonging to.....
Electrical Installation fitted by... SUNDERLAND FORGE & ENGINEERING CO. LTD. Contract No... 8... When fitted... 1944

Is vessel fitted for carrying Petroleum in bulk... — 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 INSULATED... Voltage of supply for Lighting... 110

Heating... — Power... 110 Direct or Alternating Current, Lighting... D.C. Power... D.C. 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... — 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

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... ENGINE ROOM, STBD. INBOARD, CENTRE, OUTBOARD, NEAR AFT. BULKHEAD.

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... ENGINE ROOM, STBD. AFT BKHEAD.

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... —, 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... T.P. CIRCUIT BREAKERS WITH OVERLOAD, NO VOLT, REVERSE CURRENT TRIPS AND TIME LAGS.

and for each outgoing circuit... DOUBLE POLE Q.B. SWITCHES AND DOUBLE POLE FUSES FOR FANS. DOUBLE POLE DOUBLE THROW SWITCHES AND FUSES

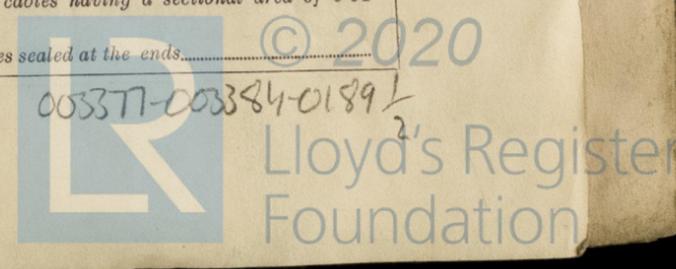
Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES. Instruments on main switchboard... 3 ammeters... 3 voltmeters... — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection... YES. Earth Testing, state means provided... EARTH LAMPS CONNECTED TO E THROUGH SWITCHES AND 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... 40%, are the reversed current protection devices connected on the pole opposite to the equaliser connection... YES, have they been tested under working conditions, and at what current

did they operate... 15%. 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... (6.V.), 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 ends... —



with insulating compound or waterproof insulating tape. 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 **—**, if so, are they adequately protected **—**. Are cables in machinery spaces, galleys, laundries, etc., lead covered **YES** or run in conduit **YES**. State how the cables are supported and protected **LEAD COVERED CABLES CLIPPED TO TRAY PLATES, AND ON HOOD GROUNDS IN ACCOMMODATION. V.I.R. CABLES IN W.I. PIPES AND CONDUIT.**

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 **—** and with what material **—**. 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 **—**, 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 oil 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 **YES**. 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 | | | Revs. per Min. | DRIVEN BY | WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. | |
|---------------------------|--------|------------|--------|-------|----------------|---------------|--|----------------------|
| | | Kilowatts. | Volts. | Amps. | | | Fuel Used. | Flash Point of Fuel. |
| MAIN | 3 | 33 | 110 | 300 | 640 | 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 | 3 X 33 | 1 | 37/083 | 300 | 296 | 50/460 | V.C. | L.C. |
| " " EQUALISER | | | 19/083 | | 191 | | V.C. | L.C. |
| 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 | | | | | | | |
| FORD FANS SECTION BOARD. | 2 | 19/064 | 272 | 270 | 120 | V.C. | L.C. |
| AFT | 1 | 19/083 | 136 | 141 | 120 | V.C. | L.C. |
| SALOON LIGHTING SECTION BOARD | 1 | 19/064 | 40 | 85 | 380 | V.I.R. | CONDUIT. |
| AFT | 1 | 19/064 | 30 | 83 | 138 | V.I.R. | " |

LIGHTING AND HEATING, ETC., CABLES.

| | | | | | | | |
|------------------------------------|---|-------|-----|----|-----|--------|----------|
| WIRELESS | 1 | 7/064 | 10 | 46 | 480 | V.I.R. | CONDUIT. |
| NAVIGATION LIGHTS | 1 | 7/029 | 1.5 | 15 | 120 | V.I.R. | L.C. |
| LIGHTING AND HEATING | ALTERNATE SUPPLY FROM SALOON SECTION BOARD. | | | | | | |
| DR. LIGHTING DIS. FUSE BOARD FORD. | 1 | 7/036 | 2.5 | 24 | 180 | V.I.R. | CONDUIT. |
| D3 | 1 | 7/036 | 7 | 24 | 300 | V.I.R. | " |
| D4 | 1 | 7/044 | 24 | 31 | 20 | V.I.R. | " |
| D5 | 1 | 7/036 | 16 | 24 | 15 | V.I.R. | " |
| D6 | 1 | 7/036 | 18 | 24 | 60 | V.I.R. | " |
| D7 | 1 | 7/029 | 22 | 15 | 270 | V.I.R. | " |
| D8 | 1 | 7/052 | 10 | 37 | 50 | V.I.R. | " |
| D9 | 1 | 7/052 | 28 | 37 | 20 | V.I.R. | " |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | | | | | |
|--|-----|--------|---|--------|----|----|---------------------|
| REFRIGERATOR. | 1 | 5 | 1 | 19/052 | 46 | 64 | 420 V.I.R. CONDUIT. |
| FORD COOLING FAN | 1 | 8 1/4 | 1 | 19/064 | 66 | 83 | 360 H.R. BRAIDED. |
| " " STBD. | 1 | 8 1/4 | 1 | 19/064 | 66 | 83 | 324 " " |
| " " PORT. | 1 | 8 1/4 | 1 | 19/064 | 66 | 83 | 324 " " |
| AFT " PORT. | 1 | 8 1/4 | 1 | 19/064 | 66 | 83 | 36 " " |
| " " STBD. | 1 | 8 1/4 | 1 | 19/064 | 66 | 83 | 36 " " |
| CIRCULATING PUMP. | 1 | 10 | 1 | 19/064 | 80 | 83 | 60 V.I.R. |

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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.

J. S. Lawrence

Electrical Engineers.

Date 5-9-1944

COMPASSES.

Minimum distance between electric generators or motors and standard compass 58 FEET

Minimum distance between electric generators or motors and steering compass 50 FEET

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères INSIDE feet from standard compass feet from steering compass.

A cable carrying .14 Ampères feet from standard compass INSIDE 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 EVERY course in the case of the standard compass, and NIL degrees on EVERY course in the case of the steering compass.

SHIPBUILDING ASSOCIATION LIMITED (TYNE BRANCH)
J. S. Lawrence
 GENERAL MANAGER.

Builder's Signature.

Date 2nd Sept. 1944

Is this installation a duplicate of a previous case? — If so, state name of vessel —

Plans. Are approved plans forwarded herewith — If not, state date of approval 4-14-44

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith FOLLOWING

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 in conformity with the Surveying Rules and Regulations, and the arrangements are in accordance with, or equal to, those shown on the approved plans.

Materials used are of good quality and the workmanship is satisfactory. On completion, the insulation resistance of all circuits was good and the generators operated on load and no-load tests with satisfactory results.

The equipment as installed is, in my opinion, suitable for a blessed vessel.

J. S. Lawrence

169.444

Total Capacity of Generators 99 Kilowatts.

The amount of Fee ... £ 40 : 10 :
 INCLUDING SPECIFICATION
 Travelling Expenses (if any) £ : :
 When applied for, 12 SEP 1944
 When received,19.....

Admission
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute 19 SEP 1944

Assigned see minute on 5 Sept.

501.430.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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