

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

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Date of writing Report 28-3-1953 When handed in at Local Office 8.4.1953 Port of GLASGOW
 No. in Survey held at PORT GLASGOW & GREENOCK. Date, First Survey 2.11.52 Last Survey 16.3.1953
 Reg. Book. (No. of Visits 8)
95726 on the M.V. "TUAREG" Tons { Gross.....
 Net.....
 Built at PORT GLASGOW By whom built LITHGOWS LTD Yard No. 1069 When built 1953
 Owners WILH. WILHEMSEN. Port belonging to TÖNSBERG
 Installation fitted by THE SUNDERLAND FORGE & ENGINEERING CO. LTD. When fitted 1953
 Is vessel equipped for carrying Petroleum in bulk YES Is vessel equipped with D.F. YES E.S.D. YES Gy.C. YES Sub.Sig. — Radar YES

Plans, have they been submitted and approved Yes System of Distribution Two wire Voltage of Lighting 110
 Heating 110 Power 110 D.C. or A.C., Lighting D.C. Power D.C. If A.C. state frequency —
 Prime Movers, has the governing been found as per Rule when full load is thrown on and off Yes Are turbine emergency governors fitted with a trip switch — Generators, are they compound wound Yes, and level compounded under working conditions Yes,
 Are the generators arranged to run in parallel Yes Is the compound winding connected to the negative or positive pole Negative
 Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing — Have certificates of test for machines under 100 kw. been supplied and the results found as per Rule Yes Position of Generators Starboard side, forward end of engine room.
 Is the ventilation in way of generators satisfactory Yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil Yes Switchboards, where are main switchboards placed Starboard side of engine room, above generators.
 are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil Yes, what insulation is used for the panels "Interolm", 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 construction as per Rule, including locking of screws and nuts Yes Description of Main Switchgear for each generator and arrangement of equaliser switches Triple pole circuit breakers fitted with two overloads and reverse current trips.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit Double pole circuit breakers fitted with two overload trips, or double pole knife switches and fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 5 ammeters 3 voltmeters — synchronising devices. For compound machines in parallel are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection Yes Earth Testing, state means provided Earth lamps Preference Tripping, state if provided No, and tested —
 Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes make of fuses Siemens, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 150% Full load current, and at what current do the reverse current protective devices operate 10-15% Full load current Cables, are they insulated and protected as per Rule 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 under 6% B.B. volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends 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 any cables laid under machines or floorplates Yes, if so, are they adequately protected Yes State type of cables (if in conduit this should also be stated) in machinery spaces VCLCB & VIRLCB, galleys VCLCB & VIRLCB and laundries — State how the cables are supported or protected Machinery spaces LCB cables clipped to steel plate or perforated tray. Mains LCAB cables clipped to steel plate. Accommodation LC cables clipped to woodwork or steelwork.

Are all lead sheaths, armouring and conduits effectually bonded and earthed 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 Refrigerated chambers, are the cables and fittings as per Rule Domestic Refrig. only
 Have refrigeration fan motors been constructed under survey — and test certificates supplied —
 Are the motors accessible for maintenance at all times —



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches 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 Is an alternative supply provided. Yes

Secondary Batteries, are they constructed, fitted and adequately ventilated as per Rule. Yes state battery capacity in ampere hours — Where required to do so does it comply with 1948 International Convention. —

Lighting, is fluorescent lighting fitted. No If so, state nominal lamp voltage. — and compartments where lamps are fitted. —

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes

Searchlights, No. of One whether fixed or portable. portable are they of the carbon arc or of the filament type. filament

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. — Motors, are all motors constructed and installed as per Rule and placed in well-ventilated

compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil. Yes

Are motors coupled to oil fuel transfer and 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 sea services been supplied and the results found as per Rule. Yes

Lightning Conductors, where required are they fitted as per Rule. —

Ships carrying Oil having a Flash Point of less than 150° F. Have all the special requirements of the Rules for such ships been complied with. Yes are all fuses of an Approved Cartridge Type. Yes make of fuse. Siemens "Zed" Are the fittings for pump

rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. Yes Are all cables lead covered as per Rule. Yes

E.S.D., if fitted state maker. Kelvin Hughes location of transmitter and receiver. Frame space 47/48

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and 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 | MAKER. | RATED AT | | | | | PRIME MOVER. | |
|------------------------------|--------|------------------|--------------------|--------|-------|----------------|-------|------------------|--|
| | | | Kw. per Generator. | Volts. | Amps. | Revs. per Min. | TYPE. | MAKER. | |
| MAIN | 2 | Sunderland Forge | 75 | 110 | 682 | 600 | Oil | Ruston Hornsby | |
| | 1 | Sunderland Forge | 40 | 110 | 364 | 640 | Steam | Sunderland Forge | |
| EMERGENCY ROTARY TRANSFORMER | | | | | | | | | |

GENERATOR CABLES.

| DESCRIPTION. | No. of | Kw. | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|---------------------------|--------|-----|---------------------------|--|-----------------------------|-------|---|-------------|----------------------|
| | | | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | | | |
| MAIN GENERATOR | 2 | 75 | 2 | 37/103 | 682 | 816 | 66 | VC | LCB |
| " " EQUALISER | 1 | 40 | 1 | 37/103 | — | 408 | 33 | " | " |
| | | | 1 | 37/103 | 364 | 408 | 40 | " | " |
| | | | 1 | 37/103 | — | 408 | 20 | " | " |
| EMERGENCY GENERATOR | | | | | | | | | |
| ROTARY TRANSFORMER: MOTOR | | | | | | | | | |
| " " GENERATOR | | | | | | | | | |

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.).

| DESCRIPTION. | | No. of | Kw. | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|-------------------------|-----------------|--------|--------|---------------------------|--|-----------------------------|-------|---|-------------|----------------------|
| | | | | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | | | |
| Crew Aft lighting | Section Box "S" | 1 | 19/064 | 88.9 | 143 | 100 | VC | LCB | | |
| Crew Aft power | Dis. Box | 1 | 19/083 | 130.2 | 202 | 120 | " | " | | |
| Galley power | Section Box | 1 | 37/083 | 284 | 314 | 240 | " | " | | |
| Midship sub-switchboard | Panel "A" | 1 | 37/103 | 146 | 408 | 520 | " | LCAB | | |
| Midship sub-switchboard | Panel "B" | 1 | 37/103 | 177 | 408 | 520 | " | " | | |
| Shore Conn. Box | | 1 | 19/083 | 200 | 202 | 120 | " | LCB | | |
| Engine Room Calorifier | Dis. Box | 1 | 19/083 | 200 | 202 | 230 | " | " | | |
| Midship Calorifier | | 1 | 19/064 | 100 | 143 | 30 | " | LC | | |

DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.).

| DESCRIPTION. | | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|-----------------------------------|-------------|---------------------------|--|-----------------------------|-------|---|-------------|----------------------|
| | | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | | | |
| Workshop motor | Dis. Box | 1 | 7/064 | 39.8 | 80 | 80 | VC | LCB |
| H.O. Clarifiers | Dis. Box | 1 | 19/064 | 122 | 143 | 120 | " | " |
| Purifiers | Dis. Box | 1 | 19/083 | 183 | 202 | 120 | " | " |
| E.R. Vent Fans etc | Dis. Box | 1 | 19/064 | 83 | 143 | 70 | " | " |
| Domestic Refrig. gear | | 1 | 7/064 | 66 | 80 | 245 | " | " |
| Upper deck aft lighting | Dis. Box | 1 | 7/044 | 14 | 31 | 210 | Rubber | LCB |
| Upper deck lighting, port | Dis. Box | 1 | 7/044 | 15 | 31 | 120 | " | " |
| Port deck lighting, starboard | Dis. Box | 1 | 7/044 | 22.5 | 31 | 170 | " | " |
| Galley ranges | | 1 | 19/064 | 94.5 | 143 | 60 | VC | LCB |
| Hydrofore system | Dis. Box | 1 | 7/064 | 56 | 80 | 230 | " | " |
| Engine room lighting | Section Box | 1 | 19/064 | 71 | 143 | 30 | " | " |
| Engine room lighting, port bottom | Dis. Box | 1 | 7/044 | 11 | 31 | 180 | Rubber | " |
| Navigation lights etc | Dis. Box | 1 | 7/064 | 29 | 80 | 140 | VC | LC |
| Wireless | | 1 | 19/064 | 40 | 143 | 90 | " | " |
| Radar | | 1 | 7/064 | 60 | 80 | 120 | " | " |
| Gyro compass | | 1 | 7/029 | 10 | 15 | 100 | Rubber | LCB |
| Boat lights | Dis. Box | 1 | 7/064 | 20 | 80 | 140 | VC | LC |
| Echo sounder | | 1 | 7/029 | 7 | 15 | 110 | Rubber | LCB |
| Lower Bridge lighting | Dis. Box | 1 | 7/044 | 20 | 31 | 80 | " | " |
| Bridge deck lighting, starboard | Dis. Box | 1 | 7/064 | 22 | 80 | 20 | VC | LC |
| Purifying power | Dis. Box | 1 | 7/064 | 27.3 | 80 | 40 | " | " |
| Searchlight comm. box | | 1 | 19/064 | 27.6 | 143 | 516 | " | LCAB |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | CONDUCTORS. | | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|--|-----|--------|---------------------------|--|-----------------------------|-------|---|-------------|----------------------|
| | | | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | | | |
| Steering Motor | 2 | 2.2 | 1 | 19/083 | 174 | 202 | 290 | VC | LCB |
| Engine Room Vent Fans | 2 | 2.75 | 1 | 7/044 | 24 | 31 | 180 | Rubber | " |
| H.O. Purifiers | 2 | 7 | 1 | 7/064 | 56 | 80 | 30 | VC | " |
| H.O. Clarifiers | 2 | 7 | 1 | 7/064 | 56 | 80 | 36 | " | " |
| Fuel Valve Cooling pumps | 2 | 1.5 | 1 | 7/029 | 14.5 | 15 | 150 | Rubber | " |

NOTE.—Use Rpt. 13 Continuation Sheet if the above space is insufficient.

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.

PER PRO. THE SUNDERLAND FORGE & ENG. CO. LTD.

Electrical Contractors.

Date 1. 4. 1953.

J. B. Shanker
DIRECTOR.

COMPASSES.

Have the compasses been adjusted under working conditions

Yes

W. B. Cunningham

Builder's Signature.

Date 3.4.53

Have the foregoing descriptions and schedules been verified and found correct

Yes

Is this installation a duplicate of a previous case

No

If so, state name of vessel

—

Plans. Are approved plans forwarded herewith

No

If not, state date of approval

2-7-1952 & 7-10-1952

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

Yes

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.)

The electrical installation of this vessel has been fitted on board under Special Survey, tested under working conditions and found satisfactory. The quality of materials and workmanship is good.

Total Capacity of Generators

190

Kilowatts.

The amount of Fee ...

£ 70 : 10 :

When applied for,

at 5/- 19

When received,

19

Travelling Expenses (if any) £ 1 : 1 :

Fred B. Mort.
Surveyor to Lloyd's Register of Shipping.

GLASGOW

8 APR 1953

Committee's Minute

Assigned

See Gvk FE. Mch. R/t. N° 24881