

Rpt. 13.

No. 36002

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office
F 8 APR 1953

Date of writing Report 24.3.53 19... When handed in at Local Office MAR 31 1953 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 15.10.52 Last Survey 24.3.53 19...
Reg. Book. (No. of Visits 21)

95639 on the m.v. "MARICOPA" Tons { Gross 11342
Net 6656

Built at Sunderland By whom built Sir.J.Laing & Sons Ltd. Yard No. 797 When built 1953

Owners A/S Tanktransport(Thorvald Berg) Port belonging to Tonsberg

Installation fitted by 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. no Radar yes

Plans, have they been submitted and approved yes System of Distribution 2-wire insd. 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 on raised flat aft in 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 on raised platform near 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 Ebony "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 construction as per Rule, including locking of screws and nuts yes Description of Main Switchgear for each generator and arrangement of equaliser switches a triple-pole(one pole for equaliser) air-break circuit breaker fitted with O/L and R/V current tripping devices.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit for large power & shore supply:- a double-pole air-break circuit breaker fitted with O/L trips on each pole. Other circuits:- a double pole quick-break knife switch and cartridge type 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 are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection yes Earth Testing, state means provided E 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 "ZED", are all fuses labelled yes If circuit breakers are provided for the generators, at what overload do they operate 10%, and at what current do the reverse current protective devices operate within 15%

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 within 6 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 L.C.A.B., galleys L.C.

and laundries L.C. State how the cables are supported or protected main and sub-main cables on fore and aft gangways, V.C.L.C.A.B. clipped to solid steel troughing. Accommodation:- L.C. cables clipped to the surface of wooden grounds and protected where necessary by wood or metal guards.

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 yes

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 - 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 -, whether fixed or portable -, are they of the carbon arc or of the filament type -

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 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 yes 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 "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 Hughes location of transmitter and receiver Frames 79/80 P. & S.

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 | | | | TYPE. | PRIME MOVER. |
|------------------------------|--------|------------------------------|--------------------|--------|-------|----------------|--------|-------------------------------------|
| | | | Kw. per Generator. | Volts. | Amps. | Revs. per Min. | | |
| MAIN | 2 | S.F.&E.Co.Ltd Nos.46634/6 | 45 | 110 | 409 | 640 | Steam | S.F.&E.Co.Ltd Nos.46633/5 |
| EMERGENCY ROTARY TRANSFORMER | 1 | S.F.&E.Co.Ltd No.46640 | 45 | 110 | 409 | 900 | Diesel | Russell Newberry Ltd. No. 64A324 |

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 | No.1 | I 45 | 2 | 37/.072 | 409 | 520 | 96 | V.C. | L.C.A.B. |
| " | EQUALISER | | I | " | | 260 | 48 | " | " |
| " | No.2 | I 45 | 2 | " | 409 | 520 | 68 | " | " |
| " | eq. | | I | " | | 260 | 34 | " | " |
| " | No.3 | I 45 | 2 | " | 409 | 520 | 72 | " | " |
| " | eq. | | I | " | | 260 | 36 | " | " |
| EMERGENCY GENERATOR | | | | | | | | | |
| ROTARY TRANSFORMER: MOTOR | | | | | | | | | |
| " | GENERATOR | | | | | | | | |

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

| DESCRIPTION. | No. of | Kw. | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|-----------------------------|--------|-----|---------------------------|--|-----------------|-------|---|-------------|----------------------|
| Mid Lighting & Power SB.I. | 2 | | 2 | 37/.072 | 230 | 520 | 640 | V.C. | L.C.A.B. |
| Aft Power Section | I | | 1 | 37/.083 | 230 | 314 | 180 | " | " |
| Aft Lighting Section | I | | 1 | 19/.064 | 122 | 143 | 84 | " | " |
| Shore Connection | I | | 1 | 37/.083 | 275 | 314 | 176 | " | " |
| Refrigerating Section | I | | 1 | 19/.052 | 65 | 110 | 230 | " | " |
| Workshop Section | I | | 1 | 19/.064 | 72 | 143 | 184 | " | " |
| Vent Fans Section | I | | 1 | 7/.064 | 30 | 80 | 250 | " | " |
| Purifier Section | I | | 1 | 7/.064 | 52 | 80 | 240 | " | " |
| Pressure Pump Section | I | | 1 | 7/.064 | 39 | 80 | 260 | " | " |
| Pantry Gear Panel off SB.I. | I | | 1 | 19/.064 | 110 | 143 | 54 | " | L.C. |

| DESCRIPTION. | CONDUCTORS. No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | MAXIMUM CURRENT IN AMPERES. | | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|--------------------------|--|--|-----------------------------|-------|---|-------------|----------------------|
| | | | In the Circuit. | Rule. | | | |
| Deck Floods Db. D.2I | I | 7/.036 | 16 | 24 | 12 | V.I.R. | L.C. |
| Galley H.W.Boiler 6 Kw. | I | 7/.064 | 54 | 80 | 100 | V.C. | " |
| Baker's Oven 5.5.Kw. | I | 7/.064 | 50 | 80 | 54 | " | " |
| Pantry H.W.Boiler 3 Kw. | I | 7/.044 | 27 | 31 | 40 | V.I.R. | " |
| Seamens do. 2 Kw. | I | 7/.036 | 18 | 24 | 52 | " | " |
| Officers do. 2 Kw. | I | 7/.036 | 18 | 24 | 52 | " | " |
| Bread Prover 1 Kw. | I | 3/.036 | 9 | 10 | 50 | " | " |
| Saloon Convection Heater | I | 7/.036 | 18 | 24 | 46 | " | " |
| Owners' do. | I | 7/.036 | 18 | 24 | 48 | " | " |
| Captains' do. | I | 7/.036 | 18 | 24 | 46 | " | " |
| 2nd Officers do. | I | 7/.036 | 18 | 24 | 56 | " | " |
| Chief Engineers do. | I | 7/.036 | 18 | 24 | 140 | " | " |
| 2nd Engineers do. | I | 7/.036 | 18 | 24 | 200 | " | " |

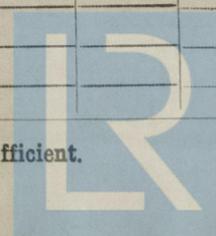
DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.).

| 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. | | | |
| Navigation - main supply | I | 19/.052 | 20 | I10 | 750 | V.C. | L.C.A.B. |
| do. - alt supply | I | 3/.036 | 2 | I0 | 100 | V.I.R. | L.C. |
| Boat & Floods DB, 2 | I | 7/.044 | 16 | 3I | 100 | " | " |
| Upper Bridge DB, 3 | I | 7/.064 | 32 | 80 | 36 | V.C. | " |
| Radar Supply | I | 7/.044 | 20 | 3I | 66 | V.I.R. | " |
| Echo Sounding Supply | I | 7/.029 | 5 | I5 | 90 | " | " |
| W/T. Supply | I | 37/.072 | 40 | 260 | 730 | V.C. | L.C. & L.C.A.B. |
| Battery Charging Supply | I | 7/.029 | 8 | I5 | 120 | V.I.R. | L.C. |
| Suez Canal Projector (wiring only) | I | 19/.083 | 27 | 202 | 1250 | V.C. | L.C. & L.C.A.B. |
| Lower Bridge Ltg. DBs 4 & 5 | I | 7/.036 | 2/12 | 24 | 2/12 | V.I.R. | L.C. |
| Stores & Pump Rm. Ltg. | I | 7/.036 | 14 | 24 | 12 | " | " |
| Forecastle Ltg. D.7 | I | 7/.036 | 3 | 24 | 512 | " | " A.B. |
| Boat Winch Connections P.&S. | I | 7/.064 | 60 | 80 | 90 | V.C. | L.C. |
| Mid Pantry Oven 5 Kw. | I | 7/.064 | 50 | 80 | 54 | " | " |
| Gyro Compass Supply | I | 7/.044 | 14 | 3I | 56 | V.I.R. | L.C.A.B. |
| Poop Dk Ltg. Fwd. P&S. D.8 & D.9. | I | 7/.044 | 2I.24 | 3I | 166/I10 | " | L.C. |
| Cargo & Boat Ltg. D.10 | I | 7/.036 | 8 | 24 | 164 | " | " |
| Seamens Pantry D.12 | I | 7/.064 | 69 | 80 | 160 | V.C. | " |
| Officers Pantry D.11 | I | 7/.044 | 38 | 45 | 120 | " | " |
| Laundry DB, 22 | I | 7/.044 | 20 | 3I | 40 | V.I.R. | " |
| Poop Dk. Ltg. Aft P&S. D.13 & D.14 | I | 7/.036 | 9-9 | 24 | 54 | " | " |
| Galley DB, 2I | I | 7/.044 | 28 | 3I | 70 | " | " |
| Upper Dk. Ltg. Fwd. P&S. D.15 & D.16 | I | 7/.036 | 2/14 | 24 | 200.90 | " | " |
| " " " Aft " D.17 & D.18 | I | 7/.036 | 2/11 | 24 | 60.100 | " | " |
| Engine Rm. Ltg. D.19 & D.20 | I | 7/.044 | 2/20 | 3I | 180.80 | " | " |
| Galley Range 10.4 Kw. | I | 19/.064 | 95 | 143 | 200 | V.C. | L.C.A.B. |
| Boat Winch Connections P.&S. | I | 7/.064 | 60 | 80 | 168.120 | V.C. | L.C. |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | | | | | | |
|--|-----|--------|---|---------|-----|-----|---------|------------|
| Midship Vent Fan No. 1. | I | 4.5 | I | 7/.064 | 38 | 80 | 170 | V.C. L.C. |
| Aft do. Nos. 2/3 | 2 | 4.5 | I | 7/.064 | 38 | 80 | 100.180 | " " |
| Fridge Compressors | 2 | 5 | I | 7/.064 | 40 | 80 | 2/40 | " L.C.A.B. |
| " Circ. Pump | I | I | I | 7/.029 | 10 | 15 | 200 | V.I.R. " |
| Priming Pump | I | 1.5 | I | 7/.036 | 15 | 24 | 120 | " " |
| Laval Purifiers | 2 | 7.5 | I | 7/.064 | 61 | 80 | 2/160 | V.C. " |
| Turning Motor | I | 20 | I | 19/.064 | 156 | 143 | 180 | " " |
| Lathe Motor | I | 3 | I | 7/.064 | 26 | 80 | 100 | " " |
| Crane Motor | I | 3 | I | 7/.044 | 26 | 3I | 120 | V.I.R. " |
| Grinder Motor | I | 1.5 | I | 7/.036 | 14 | 24 | 70 | " " |
| Shaper Motor | I | 2 | I | 7/.036 | 18 | 24 | 48 | " " |
| Drilling Motor | I | 1.5 | I | 7/.036 | 15 | 24 | 40 | " " |
| Engine Room Vent Fans | 4 | 1.0 | I | 7/.036 | 85 | 24 | 4/160 | " " |
| Purifiers | 3 | 3 | I | 7/.044 | 26 | 3I | 3/40 | " " |
| Pressure Pumps | 3 | 1.5 | I | 7/.036 | 13 | 24 | 3/50 | " " |
| Galley Exhaust Fan | I | 0.2 | I | 3/.036 | 2 | 10 | 76 | " L.C. |
| " Range " | I | 0.3 | I | 3/.036 | 3 | 10 | 90 | " " |
| Potato Peeler | I | 0.3 | I | 3/.036 | 3 | 10 | 80 | " " |
| Mincer Motor | I | 0.3 | I | 3/.036 | 3 | 10 | 40 | " " |
| Mixer Motor | I | 0.3 | I | 3/.036 | 3 | 10 | 40 | " " |
| Pantry Exhaust Fan | I | 0.1 | I | 3/.036 | 1 | 10 | 18 | " " |
| Washing m/c | I | 0.6 | I | 3/.036 | 4 | 10 | 66 | " " |
| Ironing m/c | I | .35 | I | 3/.036 | 2.4 | 10 | 64 | " " |
| Extractor | I | .5 | I | 3/.036 | 3.4 | 10 | 30 | " " |
| Domestic Fridges | 4 | .5 | I | 3/.036 | 3.4 | 10 | av.40 | " " |
| Iron Connections | 4 | .5 | I | 3/.036 | 3.4 | 10 | av.50 | " " |
| Iced Water Pumps | 2 | .5 | I | 3/.036 | 3.4 | 10 | 2/60 | " " |

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



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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.

Electrical Contractors. Date 26-3-53.

R. McQueen

COMPASSES.

Have the compasses been adjusted under working conditions. yes

Builder's Signature. Date 30-3-53

Alan Mann

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. yes If not, state date of approval. -

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 pump room lighting arrangements are in accordance with the Secretary's letter dated 21.10.52. The electrical equipment of this vessel has been installed under special survey, and with the above qualification, complies with the "Rules for Electrical Equipment" and Section 15 thereof. The arrangements in general principle accord with those shown on the approved plans, and an "as fitted" diagram of the circuits is attached to this Report. The materials and workmanship are good. On completion, satisfactory trials of the equipment were witnessed and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a vessel intended to be classed with this Society for "Carrying Petroleum In Bulk".

2m.8.50.—Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

23 9.4.53

Total Capacity of Generators (3 x 45) 135 Kilowatts.

The amount of Fee ... £62. 5. 0

When applied for, APR - 7 1953

When received, 19

Travelling Expenses (if any) £

Surveyor to Lloyd's Register of Shipping.

S. W. ...

TUES. 21 APR 1953

Committee's Minute

Assigned *S. F. E. ...*



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