

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 18 AUG 1950

Date of writing Report 28.7.1950 When handed in at Local Office 3-8-1950 Port of Middlesbrough

No. in Survey held at Southbank-on-Tees Date, First Survey 9.5.50 Last Survey 20.7.1950
Leg. Book. (No. of Visits 8)

67559 on the M. V. "Lumen" Tons Gross 10146.25 Net 5864.66

Built at Southbank-on-Tees By whom built Smith's Dock Co. Ltd. Yard No. 1197 When built 1950

Owners Lutrous S.S. Co. Ltd. (K.A. Moss & Co.) Port belonging to Liverpool

Installation fitted by Campbell & Sherwood. Co. Ltd. When fitted 1950

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

If not compound wound state distance between generators - and from switchboard - Are the generators arranged to run

in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

in 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

Position of Generators Inboard & Outboard, Port side forward on raised flat.

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 adjacent to shell,

facing starboard and near generators on generator flat.

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 Sindanyo Ebony finish, 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 Air Break Circuit Breaker with

Overloads and Time delays on two poles, Reverse current trip, and third

pole coupled to equaliser.

and the switch and fuse gear (or circuit breakers) 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 3

ammeters 3 voltmeters - synchronising devices. For compound machines in parallel are the ammeters and reversed current

protection devices connected on the pole opposite to the equaliser connection Yes Earth Testing, state means provided

Earth lamps coupled to Earth through switches and fuses.

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes.

make of fuses Siemens 'Z', 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 reversed current protective devices operate 10%

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes.

Cables, are they insulated and protected as per Rule 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 < 0.6 v, are the ends of all cables having a sectional

area of 0.01 square inch and above provided with soldering sockets. Yes. 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. No, if so, are they

adequately protected. - Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes, or run in conduit. -

or of the "HR" type. - State how the cables are supported or protected clipped to solid steel tray

plate under fore and aft gangway. Generator mains clipped to solid steel plate.

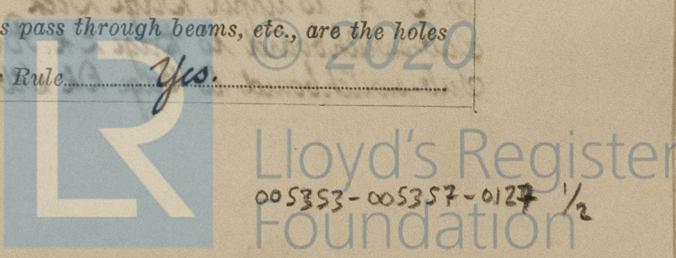
Pyrotinax cables in Engine Room clipped to perforated steel tray plate. Lead

covered cables in accommodation clated to wood grounds.

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.



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 and fitted as per Rule... *Yes*... are they adequately ventilated... *Yes*... state battery capacity in ampere hours... *Yes*...

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof... *Yes*... Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present... *Yes*... if so, how are they protected... *"Wigan" Flameproof fittings*...

and where are the controlling switches fitted... *Officers Quarters midships*... Are all fittings suitably ventilated... *Yes*...

Searchlight Lamps, 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... *—*... 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*...

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... *Yes*... are all fuses of an Approved Cartridge Type... *Yes*... make of fuse... *Siemens 'Z'*... Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships... *Yes*... Are the cables lead covered as per Rule... *Yes*...

E.S.D., if fitted state maker... *Marconi*... location of transmitter... *Fore end E.R.*... and receiver... *Fore end E.R.*...

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. | |
|---------------------------|--------|-----------------|--------------------------|--------|----------|----------------|--------------|-------------------------------------|
| | | | Kilowatts per Generator. | Volts. | Ampères. | Revs. per Min. | TYPE. | MAKER. |
| MAIN ... | 2 | Sunduland Forge | 50 | 110 | 454 | 500 | Steam | P. Brotherhood Engines: 11780A & B. |
| EMERGENCY ... | 1 | Sunduland Forge | 15 | 110 | 136.5 | 1000 | Diesel | Ruston Kennedy No. 271020. |
| ROTARY TRANSFORMER | | | | | | | | |

GENERATOR CABLES.

| DESCRIPTION. | KILOWATTS. | 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 ... | 50 | 2 | 37/072 | 454 | 520 | 44 | Vb. | L. b. & B. |
| " " EQUALISER ... | 50 | 1 | 37/072 | 227 | 260 | 22 | Vb. | L. b. & B. |
| | 50 | 2 | 37/072 | 454 | 520 | 48 | Vb. | L. b. & B. |
| | 15 | 1 | 37/072 | 227 | 260 | 24 | Vb. | L. b. & B. |
| | 15 | 1 | 0.1 | 136.5 | 202 | 200 | Pyrotinax. | |
| EMERGENCY GENERATOR ... | | | | | | | | |
| ROTARY TRANSFORMER: MOTOR ... | | | | | | | | |
| " " GENERATOR... | | | | | | | | |

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

| DESCRIPTION. | 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. |
|---|---------------------------|--|-----------------|-------|---|-------------|----------------------|
| Main switchboard to Midships Sub. b.d. | 2 | 0.15 | 150 | 260 | 600 | Pyrotinax. | |
| Main switchboard to Eng. Room S.B. 'N' | 1 | 0.0145 | 50 | 60 | 20 | Pyrotinax | |
| Main switchboard to Pop. Dk. But. S.B. 'P' | 1 | 0.0145 | 33.5 | 60 | 100 | Pyrotinax. | |
| Main switchboard to Upper Dk. But. S.B. 'Q' | 1 | 0.0145 | 38 | 60 | 100 | Pyrotinax. | |
| Sub-switchboard to Upper Edge Dk. S.B. 'A' | 1 | 7/064 | 50 | 80 | 70 | Vb. | L. b. & B. |
| Sub-switchboard to Navigation Indicator | 1 | 7/036 | 5 | 24 | 130 | V.S.R. | L. b. & B. |
| Alternative supply to Navigation from 'A' | 1 | 7/036 | 5 | 24 | 76 | V.S.R. | L. b. & B. |
| S.B. 'A' to Whulhouse D.B. 'A1' | 1 | 7/036 | 21 | 24 | 130 | V.S.R. | L. b. & B. |
| S.B. 'A' to Whulhouse D.B. 'A2' | 1 | 7/036 | 10 | 24 | 130 | V.S.R. | L. b. & B. |
| S.B. 'A' to Upper Edge Deck D.B. 'A3' | 1 | 7/036 | 19 | 24 | 6 | V.S.R. | L. b. & B. |
| Sub-switchboard to Edge Dk. But. S.B. 'B1' | 1 | 7/036 | 23 | 24 | 20 | V.S.R. | L. b. & B. |
| Sub-switchboard to Edge Dk. But. S.B. 'B2' | 1 | 7/036 | 20 | 24 | 20 | V.S.R. | L. b. & B. |

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

| 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. | | | |
| Sub-switchboard to Foucastle D.B. 'C' | 1 | 0.0145 | 9.5 | 60 | 170 | Pyrotinax. | |
| Sub-switchboard to Floods. D.B. | 1 | 7/036 | 7.3 | 24 | 130 | V.S.R. | L. b. & B. |
| Sub-switchboard to Surge Canal Pipilar. | 1 | 7/064 | 40 | 80 | 300 | Vb. | L. b. & B. & Pyrotinax |
| Sub-switchboard to Lync Compass. | 1 | 7/036 | 30 | 30 | 170 | Vb. | L. b. & B. |
| Sub-switchboard to Radar. | 1 | 7/064 | 40 | 80 | 120 | Vb. | L. b. & B. |
| Sub-switchboard to Winless | 1 | 7/064 | 20 | 80 | 160 | Vb. | L. b. & B. |
| Main switchboard to Show Supply | 1 | 0.1 | | 202 | 110 | Pyrotinax. | |
| Sub-switchboard to Cargo D.B. | 1 | 7/036 | 15 | 24 | 20 | V.S.R. | L. b. & B. |
| Sub-switchboard to Pantry Power. | 1 | 7/036 | 20 | 24 | 20 | V.S.R. | L. b. & B. |

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. | | | |
| Turning Gear. | 1 | 7.5 | 1 | 0.0225 | 61 | 80 | 140 | Pyrotinax | |
| Oil Purifiers 1, 2, & 3. | 3 | 2.5 | 1 | 0.007 | 23 | 30 | 100 | Pyrotinax | |
| Oil Fuel Pump. | 1 | 1.5 | 1 | 0.007 | 15 | 30 | 180 | Pyrotinax | |
| Rising Motion | 1 | 4.0 | 1 | 0.0145 | 35 | 60 | 260 | Pyrotinax | |
| Salt Water Pump. | 2 | 1.0 | 1 | 0.003 | 10 | 10 | 60 | Pyrotinax | |
| Lathe | 1 | 3.0 | 1 | 0.007 | 26 | 30 | 20 | Pyrotinax | |
| Grinder | 1 | 3.0 | 1 | 0.007 | 26 | 30 | 26 | Pyrotinax | |
| Engine Room Vent Fans. | 2 | 2.0 | 1 | 0.007 | 18 | 30 | 220/20 | Pyrotinax | |
| Vent Unit | 1 | 6.85 | 1 | 0.0225 | 58 | 80 | 220 | Pyrotinax | |
| Battery Vent Fan. | 1 | 0.5 | 1 | 0.002 | 5 | 5 | 100 | Pyrotinax | |
| Crane Motor | 1 | 3.0 | 1 | 0.007 | 26 | 30 | 100 | Pyrotinax | |
| Pantry Vent Fan. | 1 | 0.33 | 1 | 3/036 | 4 | 10 | 80 | V.S.R. | |
| Vent Unit | 1 | 6.85 | 1 | 7/064 | 58 | 80 | 120 | Vb. | |
| Fresh Water Pump. | 1 | 1.0 | 1 | 7/036 | 10 | 24 | 100 | V.S.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.

CAMPBELL & ISHERWOOD, LTD.

Electrical Contractors.

Date 10th Aug 1950

COMPASSES.

Have the compasses been adjusted under working conditions.

YES.

For SMITH'S DOCK CO. LTD.

C. E. Curlett

Builder's Signature.

Date 3-8-50.

SHIPYARD MANAGER

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, 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 Rules for Electrical Equipment.

The materials used are of good quality and the workmanship is good.

On completion the equipment was operated under working conditions, the various protective devices on the circuit breakers were adjusted and operated, and the insulation resistance of all circuits measured and found good.

This installation is in my opinion suitable for a classed vessel intended for the carriage of petroleum in bulk.

Noted
S.S. 30-8-50

Special Notation :- E.S.D., D.F., Gyro C., and Radar.

Total Capacity of Generators 115 Kilowatts.

| | | | |
|--------------------------------|----------|---|-------------------|
| The amount of Fee ... | £ 57 : 5 | : | When applied for, |
| | | | 17-8-1950. |
| Travelling Expenses (if any) £ | : | : | When received, |
| | | | 19. |

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 1 SEP 1950

Assigned

See F.F. weekly rpt.

2m.9.46.—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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