

part. 3483
2.1 kg/cm
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No. 1191

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) -7 APR 1933

Received at London Office
 Date of writing Report 4th April, 1933 When handed in at Local Office 5th April, 1933 Port of Malmö
 in Survey held at Malmö Date, First Survey 28th Oct., 1931 Last Survey 31st March, 1933
 (Number of Visits 18)
 on the Twin Screw Motor Tanker "PROCYON" Tons { Gross 8721
 Net 4954
 When built 1933
 By whom built Kockums M. V. Aktiebolag Yard No. 171
 Port belonging to Trelleborg
 Electric Light Installation fitted by Kockums M. V. Aktiebolag Contract No. When fitted 1933
 The Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wire system
 Pressure of supply for Lighting 110 ✓ volts, Heating 110 ✓ volts, Power 110 ✓ volts.
 System of Alternating Current, Lighting Direct ✓ Power Direct

Working pressure of the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes ✓
 Generators, do they comply with the requirements regarding rating Yes ✓, are they compound wound Yes ✓
 they over compounded 5 per cent. Yes ✓, if not compound wound state distance between each generator ✓
 Are more than one generator is fitted are they arranged to run in parallel Yes ✓, is an adjustable regulating resistance fitted in
 with each shunt field Yes ✓

Are all terminals accessible, clearly marked, and furnished with sockets Yes ✓, are they so spaced or shielded that they cannot be accidentally earthed,
 or short circuited, or touched Yes ✓
 Position of Generators One oil engine driven on each side at the fore end of the motor space and one steam engine driven on 2nd deck stbd. side at after end of motor space. ✓
 Is the ventilation in way of the generators satisfactory Yes ✓, are they clear of all inflammable material Yes ✓
 Are they situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators
 and Yes ✓, are the generators protected from mechanical injury and damage from water, steam or oil Yes ✓,
 their axes of rotation fore and aft Yes ✓

Are the bedplates and frames of the generating plant efficiently earthed Yes ✓ are the prime movers and
 their respective generators in metallic contact Yes ✓
 Position of Main Switch Boards, where placed In the motor space on an athwartship platform abaft the ✓
 main engines. If the generators and main switchboard are not placed in the same compartment, is each generator provided with
 a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓

Are the switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes ✓
 are they protected from mechanical injury and damage from water, steam or oil Yes ✓, if situated near unprotected
 woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓
 are they constructed wholly of durable, non-ignitable non-absorbent materials Iron ✓, is all insulation of high dielectric strength and of
 permanently high insulation resistance Yes ✓, if semi-insulating material is used, are all conducting parts insulated from the slab
 with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Insulators for 5000 V. fitted. ✓

Is the frame effectively earthed Yes ✓. Are the fittings as per Rule regarding:— spacing or shielding of live parts
 accessibility of all parts Yes ✓, absence of fuses on back of board Yes ✓, proportion of omnibus
 fuses Yes ✓, individual fuses to voltmeter, pilot or earth lamp Yes ✓, connections of switches Yes ✓
 Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For each generator:—
double pole circuit breaker with overload and reversed current trips & a single pole equalizer switch. ✓
each outgoing circuit:— A double pole linked switch and a fuse on each pole. ✓

Instruments on main switchboard 8 ✓ ammeters 3 ✓ voltmeters ✓ synchronising device for paralleling purposes.
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Ohm meters with ✓
indicators for both poles, lamps.

Do switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes ✓
 Point Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes ✓

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Cables: Single, twin, concentric, or multicore *None* are the cables insulated and protected as per Tables IV *of the Rules* *Yes*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *less than allowed in Sec. 4 Par. 4*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *Yes*

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *Yes*

Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *Yes*

Support and Protection of Cables, state how the cables are supported and protected *supported by metal clips. All cables lead covered and armoured with galv. steel tap, except in accommodations where lead covered. Where required protected by steel sheet.*

If cables are run in wood casings, are the casings and caps secured by screws *Yes*, are the cap screws of brass *Yes*, are the cables run in separate grooves *Yes*. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *Yes*

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements *Yes*

Joints in Cables, state if any, and how made, insulated, and protected *No joints in main or power cables. For branch cables metal joint boxes and watertight glands.*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yes*

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yes*. state the material of which the bushes are made *Lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yes*

are their connections made as per Rule *Yes*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Yes*

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *Yes*

Navigation Lamps, are these separately wired *Yes*, controlled by separate switch and separate fuses *Yes*, are the fuses double pole *Yes*

are the switches and fuses grouped in a position accessible only to the officers on watch *Yes*

has each navigation lamp an automatic indicator as per Rule *Yes*

Secondary Batteries, are they constructed and fitted as per Rule *Yes*

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

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *Lamps contained in gastight fittings.*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *in gastight fittings.*

where are the controlling switches situated *Outside the dangerous space.*

Searchlight Lamps, No. of *Yes*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

Are Lamps, other than searchlight lamps, No. of *Yes*, are their live parts insulated from the frame or case *Yes*, are their fittings as per Rule *Yes*

Motors, are their working parts readily accessible *Yes*, are the coils self-contained and readily removable for replacement *Yes*

are the brushes, brush holders, terminals and lubricating arrangements as per Rule *Yes*, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *Yes, most of the motors are in the motor space.*

are they protected from mechanical injury and damage from water, steam or oil *Yes*, are their axes of rotation fore and aft *Yes, as a rule.*

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Yes*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes* and *Yes*

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes*

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule *Yes*

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings *Yes*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *Yes. Davies hand lamps.*

PARTICULARS OF GENERATING PLANT.

| DESCRIPTION OF GENERATOR. | No of | RATED AT | | | | DRIVEN BY | WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. | |
|---------------------------|-------|------------|--------|-------|----------------|--------------------|--|----------------------|
| | | Kilowatts. | Volts. | Amps. | Revs. per Min. | | Fuel Used. | Flash Point of Fuel. |
| MAIN | 2 | 2-75 | 115 | 2-652 | 350 | Heavy oil engines. | Heavy oil | Above 150° F |
| AUXILIARY | 1 | 50 | 115 | 435 | 600 | Steam engine | | |
| EMERGENCY | | | | | | | | |
| ROTARY TRANSFORMER | | | | | | | | |

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

| DESCRIPTION. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length (Lead and Return) in m. | Insulated with | HOW PROTECTED. |
|--------------------------|---------------|---------------------------------------|------------------------|-----------------|------------------------|-------|--|----------------|---|
| | No. per Pole. | Total Effective Area per Pole Sq. mm. | No. | Diameter in mm. | In Circuit. | Rule. | | | |
| MAIN GENERATOR | 3 | 185 | 37 | 2.52 | 660 | 700 | 55 | Rubber | Lead covered and arm. with galv. steel tap. |
| EQUALISE CONNECTIONS | | 3x150 | 37 | 2.3 | - | - | 55 | " | " |
| AUXILIARY GENERATOR | 2 | 185 | 37 | 2.52 | 440 | 460 | 26 | " | " |
| EMERGENCY GENERATOR | | 2x120 | 37 | 2.03 | - | - | - | " | " |
| ROTARY TRANSFORMER MOTOR | | | | | | | | | |
| ENGINE ROOM | 1 | 16 | 7 | 1.71 | 40 | 50 | 30 | " | " |
| BOILER ROOM | 1 | 16 | 7 | 1.71 | 40 | 50 | 30 | " | " |
| AUXILIARY SWITCHBOARDS | | | | | | | | | |
| Light dist. board A | 1 | 10 | 7 | 1.35 | 10 | 40 | 100 | " | " |
| " " B | 1 | 50 | 19 | 1.83 | 60 | 100 | 200 | " | " |
| " " C | 1 | 6 | 7 | 1.05 | 8 | 25 | 200 | " | " |
| " " D | 1 | 16 | 7 | 1.71 | 30 | 50 | 60 | " | " |
| " " E | 1 | 16 | 7 | 1.71 | 30 | 50 | 52 | " | " |
| ACCOMMODATION | 1 | 1.5 | 7 | 0.52 | MAX. 5 | 8 | MAX. 45 | " | Lead covered. |
| WIRELESS | 1 | 16 | 7 | 1.71 | - | - | 200 | Rubber | Lead covered and arm. with galv. steel tap. |
| SEARCHLIGHT SVEZ | 1 | 95 | 19 | 2.52 | - | 145 | 290 | " | " |
| MASTHEAD LIGHT | 1 | 1.5 | 7 | 0.52 | 0.75 | 8 | 150 | " | " |
| SIDE LIGHTS | 1 | 1.5 | 7 | 0.52 | 0.75 | 8 | 50 | " | " |
| COMPASS LIGHTS | 1 | 1.5 | 7 | 0.52 | 0.75 | 8 | 15 | " | " |
| POOP LIGHTS | 1 | 1.5 | 7 | 0.52 | 0.75 | 8 | 225 | " | " |
| CARGO LIGHTS | | | | | | | | | |
| ARC LAMPS | | | | | | | | | |
| HEATERS | | | | | | | | | |

MOTOR CONDUCTORS.

| DESCRIPTION. | No. of Motors. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. | | Approximate Length (Lead and Return) in m. | Insulated with | HOW PROTECTED. |
|-------------------------|----------------|---------------|---------------------------------------|------------------------|-----------------|------------------------|-------|--|----------------|---|
| | | No. Per Pole. | Total Effective Area per Pole Sq. mm. | No. | Diameter in mm. | In Circuit. | Rule. | | | |
| BALLAST PUMP | 1 | 1 | 95 | 19 | 2.52 | 136 | 145 | 24 | Rubber | Lead covered and arm. with galv. steel tap. |
| MAIN BILGE LINE PUMPS | | | | | | | | | | |
| GENERAL SERVICE PUMP | | | | | | | | | | |
| EMERGENCY BILGE PUMP | 2 | 1 | 35 | 7 | 2.53 | 48 | 60 | 40 & 46 | " | " |
| SANITARY PUMP | | | | | | | | | | |
| CIRC. SEA WATER PUMPS | 2 | 1 | 150 | 37 | 2.3 | 192 | 200 | 24 | " | " |
| CIRC. FRESH WATER PUMPS | 1 | 1 | 35 | 7 | 2.53 | 56 | 60 | 40 | " | " |
| AIR COMPRESSOR | | | | | | | | | | |
| FRESH WATER PUMP | 1 | 1 | 2.5 | 7 | 0.67 | 8 | 15 | 30 | " | " |
| ENGINE TURNING GEAR | 2 | 1 | 35 | 7 | 2.53 | 72 | 80 | 20 | " | " |
| ENGINE REVERSING GEAR | | | | | | | | | | |
| LUBRICATING OIL PUMPS | 2 | 1 | 185 | 37 | 2.52 | 216 | 230 | 28 | " | " |
| OIL FUEL TRANSFER PUMP | 1 | 1 | 16 | 7 | 1.71 | 40 | 50 | 20 | " | " |
| WINCH | 1 | 1 | 95 | 19 | 2.52 | 60 | 160 | 350 | " | " |
| WINCHES, FORWARD | | | | | | | | | | |
| WINCHES, AFT | | | | | | | | | | |
| STEERING GEAR | | | | | | | | | | |
| (a) MOTOR GENERATOR | 1 | 1 | 150 | 37 | 2.3 | 200 | 260 | 100 | " | " |
| (b) MAIN MOTOR | 1 | 1 | 6 | 7 | 1.05 | 24 | 25 | 40 | " | " |
| WORKSHOP MOTOR | 1 | 1 | 6 | 7 | 1.05 | 24 | 25 | 40 | " | " |
| VENTILATING FANS | | | | | | | | | | |
| CO2 compressor | 1 | 1 | 50 | 19 | 1.83 | 60 | 100 | 20 | " | " |
| Lub. oil separator | 1 | 1 | 2.5 | 7 | 0.67 | 8 | 15 | 30 | " | " |
| " heater | 1 | 1 | 2.5 | 7 | 0.67 | 8 | 15 | 30 | " | " |
| Turb. oil separator | 1 | 1 | 2.5 | 7 | 0.67 | 8 | 15 | 40 | " | " |
| " heater | 1 | 1 | 150 | 37 | 2.3 | 163 | 200 | 40 | " | " |

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description

W. J. Lundgren Electrical Engineers.

Date 5/4 - 1933

COMPASSES.

Distance between electric generators or motors and standard compass *From engine room resp. fwd. pump room to bridge.*

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

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

A cable carrying Ampères feet from standard compass 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

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be degrees on course in the case of the standard

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

KOCKUMS MEKANISKA VERKSTADS
ARTIE-BOLAG

E. M. ... Builder's Signature.

Date 5/4 - 1933

Is this installation a duplicate of a previous case *No* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

The above described electric installation has been fitted onboard this vessel under my inspection and has been tested and found satisfactory. All the Rule requirements have been complied with. The workmanship is good.

It is submitted that this vessel is eligible for THE RECORD

Electric Light

W. J. Lundgren
12-4-33

Total Capacity of Generators *200* Kilowatts.

The amount of Fee ... *£ 664.30* When applied for, *5th April 1933.*

Travelling Expenses (if any) £ : *26.4.33* When received,

A. Sunden
Surveyor to Lloyd's Register of Shipping.

WED. 18 APR 1933

Committee's Minute

Assigned *Electric Light*

1m, 12, 28.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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