

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

28 SEP 1936

Received at London Office

Date of writing Report 22nd Sept. 1936 When handed in at Local Office 10 Port of BREMEN

No. in Survey held at VEGESACK Date, First Survey 13th July Last Survey 3rd Sept. 1936
 Reg. Book. 85438 on the SINGLE SCREW MOTOR TANKER TORNUS (Number of Visits 13)

Built at VEGESACK By whom built BREMER VULKAN Yard No. 722 When built 1936

Owners SARAWAK OILFIELDS, LD. Port belonging to MIRI

Electric Light Installation fitted by ALLGEMEINE ELECTRICITÄTS GES. Contract No. When fitted 1936

Is the Vessel fitted for carrying Petroleum in bulk YES

System of Distribution Twt Wire System

Pressure of supply for Lighting 110 volts, **Heating** volts, **Power** 110 volts.

Direct or Alternating Current, Lighting direct **Power** direct

If alternating current system, state frequency of periods per second

Has 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 temperature rise yes, are they compound wound yes
 are they over compounded 5 per cent. yes, if not compound wound state distance between each generator

Where more than one generator is fitted are they arranged to run in parallel no, is an adjustable regulating resistance fitted in series with each shunt field yes Have certificates of test results for machines under 100 kw. been submitted and approved yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing

Are all terminals accessible, clearly marked, and furnished with sockets yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched yes Are the lubricating arrangements of the generators as per Rule yes

Position of Generators Engine room starb. side, is the ventilation in way of the generators satisfactory yes are they clear of all inflammable material yes if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators and , are the generators protected from mechanical injury and damage from water, steam or oil yes, are their axes of rotation fore and aft yes

Earthing, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers and their respective generators in metallic contact yes **Main Switch Boards**, where placed Engine room starb. side

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

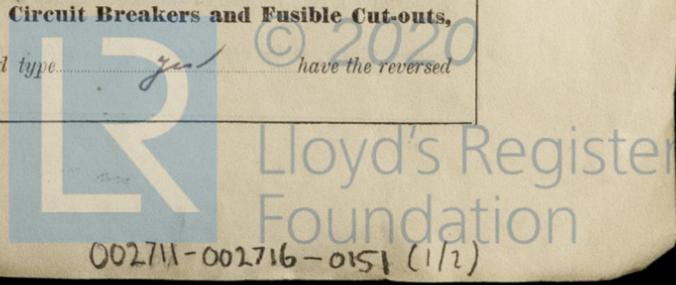
Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes yes, are they protected from mechanical injury and damage from water, steam or oil yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards and , are they constructed wholly of durable, non-ignitable non-absorbent materials marked, is all insulation of high dielectric strength and of permanently high insulation resistance yes, like 2000 volt, is it of an approved type 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 yes, is the non-hygroscopic insulating material of an approved type yes, and is the frame effectively earthed yes Are the fittings as per Rule regarding:— spacing or shielding of live parts yes, accessibility of all parts yes, absence of fuses on back of board yes, temperature rise of omnibus bars yes, individual fuses to voltmeter, pilot or earth lamp yes, are moving parts of switches alive in the "off" position no are all screws and nuts securing connections effectively locked yes are any fuses fitted on the live side of switches no

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches
For each generator a double pole linked switch and a fuse on each pole
For each outgoing circuit a double pole change over switch and a fuse on each pole

Are turbine driven generators fitted with emergency trip switch as per rule Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material yes **Instruments** on main switchboard 2 ammeters 2 voltmeters synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

yes **Earth Testing**, state what means are provided at the main switchboard for indicating the state of the insulation of the system
Earth testing lamps

do these comply with the requirements of the Rules yes are the fusible cutouts of an approved type yes have the reversed



current protection devices been tested under working conditions *yes* Joint Boxes, Section and Distribution Boards, is the

construction, protection, insulation, material, and position of these as per rule *yes*

Cables: Single, twin, concentric, or multicore *single multicore* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type *yes* Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load *about 3 Volts* Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets *yes* Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with

insulating compound *no paper insulated cables*, or waterproof insulating tape. 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* Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *lead covered*

Support and Protection of Cables, state how the cables are supported and protected *cables on deck along the gangway led in*

strong steel tubes. In engine boiler room on hull case leads

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, are the cables and fittings in accordance with the special requirements *yes*

Joints in Cables, state if any, and how made, insulated, and protected *in watertight joint boxes*

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 *none*

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 *none*

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 *none*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *yes, lower bridge deck*

gas light lamps, how are the cables led *lead on gas light tubing*

where are the controlling switches situated *in upper bridge deck*

are all fittings suitably ventilated *yes*, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *none*, are air heaters constructed and fitted as per Rule *yes*

Searchlight Lamps, No. of *two search lamp*, whether fixed or portable *portable*, 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*, are they protected from mechanical injury and damage from

water, steam or oil *yes* are their axes of rotation fore and aft *yes*, 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*

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *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* are all fuses of the filled cartridge type *yes* are they of an approved type *yes*

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office *yes*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes*

PARTICULARS OF GENERATING PLANT.

Table with columns: DESCRIPTION OF GENERATOR, No. of, RATED AT (Kilowatts, Volts, Amperes, Revs. per Min.), DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel).

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

Table with columns: DESCRIPTION, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.

MOTOR CONDUCTORS.

Table with columns: DESCRIPTION, No. of Motors, CONDUCTORS (No. per Pole, Total Nominal Area per Pole Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), TOTAL MAXIMUM CURRENT (In Circuit, Rule), Approximate Length (Lead and Return) Feet, Insulated with, HOW PROTECTED.

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All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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

The foregoing is a correct description.

ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT
ABT. I. SCHIFFBAU
BAUBUREAU HAMBURG.

Müller

Electrical Engineers.

Date

11.9.36.

COMPASSES.

Distance between electric generators or motors and standard compass 15 m

Distance between electric generators or motors and steering compass 20 m

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères 400 ft feet from standard compass 400 ft feet from steering compass.

A cable carrying 3 Ampères 8 feet from standard compass 10 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 all course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

Bremer Vulkan
Schiffbau und Maschinenfabrik

M. Wolfson

Builder's Signature.

Date 16.9.

Is this installation a duplicate of a previous case yes If so, state name of vessel TARON

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

been built under Special Survey in accordance with the approved plans, the Secretary's letter, and in conformity with the requirements of the Rules. The materials used in the construction and the workmanship are of good quality. Regarding conductors the German Standards have been applied generally. The whole installation has been tested under working condition and found satisfactory in all respects.

Total Capacity of Generators 32 Kilowatts.

The amount of Fee ... RM 460.-

When applied for, 9.9.1936

Travelling Expenses (if any) £

When received, 5.10.36

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

Committee's Minute FRI. 2 OCT 1936

Assigned

see 28 Machy. Rph.

2m.5.34.—Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute.)



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