

Rpt. 13.

No. 1824.

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
Reg. Book.Date, First Survey 13th July Last Survey 3rd Sept 1936
(Number of Visits 13)

85438 on the SINGLE SCREW MOTOR TANKER TORNUS

Tons { Gross 8054
Net 4756

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 Two 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 starboard 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 starboard 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, 2000 volts,

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

voltage meters - 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 Switches, Circuit Breakers and Fusible Cut-outs,

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 cable 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 *lead in gas light tubing*, how are the cables led

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 *max 2nd 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.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	16	115	139	390	Steam Engine		
AUXILIARY ...	1	16	115	139	390	Prime Motor	Heavy Oil	above 150° F
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
2 MAIN GENERATOR S. ...	1	95	27	1.81	139	152	12	Antifer	Lead covered & wire armoured
SHORE CONNECTIONS	1	95	27	1.81	139	152	67		
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY MOTOR									
TRANSFORMER GENERATOR ...									
ENGINE ROOM ... D. R. }									
BOILER ROOM ... R. S. }	1	35	1	1.8	8	15	20	- "	- "
AUXILIARY SWITCHBOARDS									
I & Ia	1	10	19	0.82	31	39	68	- "	- "
II	1	16	19	1.04	30	50	200	- "	- "
III	1	6	19	0.64	42	27	50	- "	- "
IV	1	6	19	0.64	38	27	15	- "	- "
E. F. K.	1	10	19	0.82	11	39	260	- "	- "
Accommodation 4: M.	1	16	19	1.04	68	50	290	- "	- "
N.	1	10	19	0.82	17	39	196	- "	- "
SUB DISTRIBUTION	1	25	1	1.8	8	15		- "	- "
WIRELESS ...	1	16	19	1.04	17	50	109	- "	- "
SEARCHLIGHT ... SUEZ ...	1	35	19	1.53	45	50	768	- "	- "
MASTHEAD LIGHT ...	1	15	1	1.38	0.37	9	130	- "	- "
SIDE LIGHTS ...	1	15	1	1.38	0.37	9	25	- "	- "
COMPASS LIGHTS ...	1	15	1	1.38	0.37	9	16	- "	- "
POOP LIGHTS ...	1	15	1	1.38	0.37	9	230	- "	- "
DECK LIGHTS <i>from</i> ...	1	15	1	1.38	2.6	9	116	- "	- "
W. LAMPS <i>off</i> ...	1	15	1	1.38	2.6	9	110	- "	- "
HEATERS ...									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...										
MAIN BILGE LINE PUMPS ...										
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR ...										
FRESH WATER PUMP ...										
ENGINE TURNING GEAR ...	1	1	50	19	1.83	112	115	33	Antifer	Lead covered & wire armoured
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...										
OIL FUEL TRANSFER PUMP ...	1	1	4	19	0.52	17.8	21	204	- "	- "
WINDLASS ...										
WINCHES, FORWARD ...										
WINCHES, AFT ...										
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...										
WORKSHOP MOTOR ...	1	1	35	19	1.53	75	79	90	- "	- "
VENTILATING FANS ...										
OIL SEPARATOR ...	1	1	4	19	0.52	17.5	21	24	- "	- "
BLOWER ENG. ROOM ...	1	1	4	19	0.52	6.8	21	44	- "	- "
GRIND STONE ...	1	1	6	19	0.64	17	27	76	- "	- "
LATHE ...	1	1	4	19	0.52	17	21	74	- "	- "
DRILLING MACHINE ...	1	1	4	19	0.52	17	21	72	- "	- "

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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
AGT. I. SCHIFFBAU
BAUBUREAU HAMBURG.

Electrical Engineers.

Date 21.9.36.

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 100 ft feet from standard compass 100 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

Builder's Signature.

Date 16.9.

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

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, 9.9.19.36

Travelling Expenses (if any) £

When received, 5.10.36

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

Committee's Minute

FRI. 2 OCT 1936

Assigned

See 28 Machz. Rph.



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