

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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Date of writing Report 24<sup>th</sup> March 1931. When handed in at Local Office 25<sup>th</sup> March 1931. Port of Copenhagen

No. in Survey held at Copenhagen Date, First Survey 7<sup>th</sup> January Last Survey 18<sup>th</sup> March 1931  
(Number of Visits... 27...)

Reg. Book. 90698. on the Shell Twin Screw Motor Tank Vessel "GARONNE" Tons { Gross 7112.72 Net 4210.82

Built at Copenhagen By whom built Msk. Burmeister & Wain's Maskin- & Skibsbygger Yard No. 594 When built 1931

Owners Dampskibsbusselskabet "Garonne" (Famby & Eger) Port belonging to Oslo

Electric Light Installation fitted by Msk. Burmeister & Wain's Maskin- & Skibsbygger Contract No. When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk yes ✓

System of Distribution Two conductor insulated system

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting direct current Power direct current

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 rating yes, are they compound wound yes  
are they over compounded 5 per cent. 0 per cent., if not compound wound state distance between each generator ✓

Where more than one generator is fitted are they arranged to run in parallel yes, is an adjustable regulating resistance fitted in series 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, short circuited, or touched yes Are the lubricating arrangements of the generators as per Rule yes

Position of Generators In the machinery space, 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 Not situated near unprotected woodwork 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 In the machinery space.

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 Not situated near woodwork

are they constructed wholly of durable, non-ignitable non-absorbent materials yes, 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 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, proportion of omnibus bars 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: A three pole circuit breaker with overload and reverse current trips  
For each outgoing circuit: A double pole switch and a double pole fuse.

Instruments on main switchboard 4 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 2 Voltmeters are provided with Ohmscale (1 for 110 Volt, 1 for 220 Volt) the switchboard is provided with 2 sets of earth testing lamps (1 for 110 Volt, 1 for 220 Volt)

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes



*Main distribution single*  
**Cables:** Single, twin, concentric, or multicore cables are the cables insulated and protected as per Tables IV or V of the Rules *Table N*  
**Fall of Pressure,** state maximum between bus bars and any point of the installation *under maximum load about 5 volts*  
**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 *The cables are supported by screwed clips and where necessary protected by steel iron screens or tubes. Steel wire armoured cables used.*  
 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 cables.*  
**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 *yes.*  
 are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *The lamps in the pumprooms are contained in gaslight fittings with strong iron guards, how are the cables led in gaslight tubing.*  
 where are the controlling switches situated *outside these spaces.*  
**Searchlight Lamps, No. of** *yes*, whether fixed or portable *yes*, are their fittings as per Rule *yes.*  
**Arc 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.*  
**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.*

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	2	66	220	300	400	Auxiliary heavy oil engines	Crude oil	above 150° F.
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER	1	12	220/110	109	1500	Electro-Motor		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet. <i>M.</i>	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins. <i>M<sup>2</sup></i>	No.	Diameter. <i>M.</i>	In Circuit.	Rule.			
MAIN GENERATOR	2	2 x 95	19	2.52	300	300	26 - 45	Vulcanized rubber	Lead covered and steel wire armoured
EQUALISER CONNECTIONS	1	95	19	2.52		150	13 - 22.5		
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR	1	35	19	1.53	70	77.5	10	"	"
ROTARY TRANSFORMER GENERATOR	1	70	19	2.16	109	124	10	"	"
ENGINE ROOM	1	6	7	1.05	14.5	29	5	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
SALOONHOUSE BRIDGING	1	16	7	1.7	29	48.5	130	"	"
OFFICERS AFT	1	4	7	0.85	10.5	22.0	19	"	"
CREW	1	4	7	0.85	12.3	22.0	21	"	"
DECK AND FORWARD NAVIGATION	1	16	7	1.7	25	48.5	130	"	"
ACCOMMODATION	1	2.5	7	0.67	4.1	15.5	160	"	"
WIRELESS	1	10	7	1.35	20	38	160	"	"
SEARCHLIGHT	1	1.5	1	1.38	0.26	10	106-180	"	"
MASTHEAD LIGHT	1	1.5	1	1.38	0.26	10	30	"	"
SIDE LIGHTS	1	1.5	1	1.38	0.13	10	15	"	"
COMPASS LIGHTS	1	1.5	1	1.38	0.23	10	230	"	"
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet. <i>M.</i>	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins. <i>M<sup>2</sup></i>	No.	Diameter. <i>M.</i>	In Circuit.	Rule.			
BALLAST PUMP	1	1	16	7	1.7	31	48.5	54	Vulcanized rubber	Lead covered and steel wire armoured
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
BILGE AND SANITARY PUMP	1	1	16	7	1.7	31	48.5	51	"	"
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR FEED	1	16	7	1.7	54	50 (1/2 haw)	62	"	"	
ENGINE REVERSING GEAR	2	1	10	7	1.35	27	38	Port 28 St 11	"	"
COOLING WATER AND LUBRICATING OIL PUMPS	2	1	95	19	2.52	136	150	76	"	"
OIL FUEL TRANSFER PUMP	1	1	16	7	1.7	31	48.5	24	"	"
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	50	19	1.83	75	98.3	100	"	"
WORKSHOP MOTOR 5 FEED	1	1	2.5	7	0.67	10.5	15.5	50	"	"
VENTILATING FAN LATHE	1	1	2.5	7	0.67	6.5	15.5	10	"	"
DRILLING MACHINE	1	1	1.5	1	1.38	4	10	10	"	"
REFRIGERATING MCHY	1	10	7	1.35	28	38	82	"	"	
CO2 COMPRESSOR	1	1	6	7	1.05	19	29	6	"	"
COOLING WATER PUMP	1	1	2.5	7	0.67	4	15.5	6	"	"
LUBRICATING OIL PURIFIER HEATER	1	1	2.5	7	2.13	48	75	74	"	"
FUEL OIL PURIFIER HEATER	1	3.5	19	1.53	75	78	15	"	"	

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.

AKTIESELSKABET  
BURMEISTER & WAIN MASKIN- OG SKIBSBYGGERI

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass

About 65 meters.

Distance between electric generators or motors and steering compass

About 65 meters.

The nearest cables to the compasses are as follows:—

A cable carrying 4.1 Ampères 3 feet from standard compass 4 feet from steering compass.

A cable carrying 0.04 Ampères 6 lang in feet from standard compass and in 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 0 degrees on all course in the case of the standard

compass, and 0 degrees on all course in the case of the steering compass.

AKTIESELSKABET  
BURMEISTER & WAIN MASKIN- OG SKIBSBYGGERI

Builder's Signature.

Date

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 whole electric lighting and power installation as above described has been fitted in accordance with the Rules, the approved plan with slight amendments as shown on the plan and the requirements contained in the Secretary's letter E dated 1<sup>st</sup> September 1930.

The material and the workmanship are of good description throughout.

The electric installation has been tested under full power working conditions and found satisfactory.

It is submitted that  
this vessel is eligible for  
THE RECORD.

*See light log 13/4/31*

Recommend the vessel to have notation of ELECTRIC LIGHT  
in the Register Book

Total Capacity of Generators 132 Kilowatts.

The amount of Fee ... £ 602.42. When applied for, 30.3.1931.

Travelling Expenses (if any) £ : : When received, 9.5.31.

*A. F. Jensen*  
Superintendent Lloyd's Register of Shipping.

Committee's Minute

TUE. 14 APR 1931

Assigned

*Edco Light*



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Lloyd's Register  
Foundation