

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 11 OCT 1934

Date of writing Report 8 October 1934 When handed in at Local Office 19 Port of Copenhagen

No. in Survey held at Copenhagen Date, First Survey 15 June Last Survey 27 September 1934  
Reg. Book. 89610 on the Hel Single Screw Motor Vessel HOEGH MERCHANT (Number of Visits 26)

Built at Copenhagen By whom built H. Berner & Wain's Maskin- og Skibsbyggeri Yard No. 582 When built 1934  
Tons { Gross 4857.75  
Net 2920.62

Owners Parkheden ved Lief Hoegh Port belonging to Oslo  
Electric Light Installation fitted by H. Berner & Wain's Maskin- og Skibsbyggeri Contract No. When fitted 1934

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two conductor insulated system

Pressure of supply for Lighting 220 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 The 3 main generators in the motor room, the auxiliary generator for light in the port side aft of the deckhouse amidships

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

No woodwork 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 In the motor room

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 No wood and

are they constructed wholly of durable, non-ignitable non-absorbent materials of marble, 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 main generator

A three pole circuit breaker with overload and reverse current trips. For the auxiliary generator:

A double pole switch (linked) and a fuse on each pole. For each outgoing circuit: A double pole switch and a fuse on each pole.

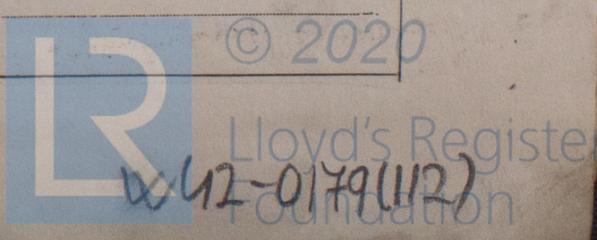
Instruments on main switchboard 5 ammeters 3 voltmeters synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system One of the voltmeters

is provided with Ohm scale and earth lamps are fitted on the main switch board.

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.



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

**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 lead covered and steel wire armoured cables used, where necessary protected by iron screens*

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 *yes*, how are the cables led *yes*, where are the controlling switches situated *yes*

**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*, 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 *Not situated near*, 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*

DESCRIPTION OF GENERATOR.	No of	RATED AT			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	2	66	220	300	320	2 cyl 2 1/2 C.I. heavy oil eng.	Crude oil	Above 150° F.
AUXILIARY	1	33	220	150	320	" " " " " "	" " " "	" " " "
EMERGENCY	1	5	220	23	800	3 " 4 C.I. paraffin eng.	paraffin	" " " "
ROTARY TRANSFORMER								

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.			Approximate Length (Lead and Return) Feet. H.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins. %	No.	Diameter %	In Circuit.	Rate.	AMPERES.			
MAIN GENERATOR ...	2	2x95	19	2.52	300	300	42	36	Vulcanized rubber	Lead covered and steel wire armoured
EQUALISER CONNECTIONS ...	1	95	19	2.52	150	150	21	18	"	"
MAIN GENERATOR .33 KW	1	95	19	2.52	150	150	52		"	"
EQUALISER CONNECTION	1	70	19	2.16		124	26		"	"
EMERGENCY GENERATOR	1	6	7	1.05	23	29	3		"	"
AUXILIARY GENERATOR										
ROTARY TRANSFORMER										
ENGINE ROOM...	1	4	7	0.85	10	22	47		"	"
BOILER ROOM...									"	"
AUXILIARY SWITCHBOARDS ...	1	16	7	1.70	47	49	39		"	"
ACCOMMODATION PARTS...	1	4	7	0.85	10	22	90		"	"
" OFFICERS	1	4	7	0.85	10	22	2		"	"
" AFT	1	2.5	7	0.67	4	16	102		"	"
NAVIGATION	1	2.5	7	0.67	1.8	16	124		"	"
WIRELESS ...	1	10	7	1.35	10	38	124		"	"
SEARCHLIGHT ...	1	1.5	1	1.38	0.18	10	96-152		"	"
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.18	10	25		"	"
SIDE LIGHTS ...	1	1.5	1	1.38	0.07	10	20		"	"
COMPASS LIGHTS ...	1	1.5	1	1.38	0.18	10	210		"	"
POOP LIGHTS ...	1	1.5	48	0.20	0.9	10	30		"	braided
CARGO LIGHTS ...										
ARC LAMPS ...										
HEATERS ...										

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.			Approximate Length (Lead and Return) Feet. H.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins. %	No.	Diameter %	In Circuit.	Rate.	AMPERES.			
BALLAST PUMP ...	1	1	35	19	1.53	68	78	63	Vulcanized rubber	Lead covered and steel wire armoured	
SANITARY AND MAIN BILGE LINE PUMPS ...	1	1	16	7	1.70	34	49	65	"	"	
GENERAL SERVICE PUMP ...											
EMERGENCY BILGE PUMP ...											
SANITARY PUMP ...	2	1	120	37	2.03	153	177	40-42	"	"	
LUBRICATING OIL AND CIRC. SEA WATER PUMPS ...	1	1	25	7	2.13	52	63	72	"	"	
DEEP TANK PUMP											
CIRC. FRESH WATER PUMPS ...	1	1	10	7	1.35	21	39	30	"	"	
NAVY COMPRESSOR FOR PROVISION											
FRESH WATER PUMP ...	1	1	10	7	1.35	28	38	24	"	"	
ENGINE TURNING GEAR...	2	1	6	7	1.05	16	29	44	"	"	
COOLING OIL PUMPS - FEED ENGINE REVERSE GEAR											
COOLING LUBRICATING OIL PUMPS ...	2	1	2.5	7	0.67	8	16	5	"	"	
OIL FUEL TRANSFER PUMP ...	1	1	16	7	1.70	34	49	53	"	"	
WINDLASS AND 3 WINCHES ...	3	1	120	37	2.03	170	177	124	"	"	
WINCHES, FORWARD ...	2	1	120	37	2.03	225 (2 HOUR) 230	124		"	"	
" " "	2	1	95	19	2.52	170 (-) 185	35		"	"	
WINCHES, AFT AND HAULING	5	1	185	37	2.52	340 (-) 340	56		"	"	
WINDLASS	1	1	120	37	2.03	160	177	35	"	"	
25 HP WINCHES	8	1	50	19	1.83	85	98	ERCH-12	"	"	
33 HP DO.	2	1	70	19	2.16	112	124	"-12	"	"	
HAULING WINCH	1	1	50	19	1.83	85	98	85	"	"	
STEERING MOTOR GENERATOR											
(b) MAIN MOTOR ...	1	1	25	7	2.13	48	63	122	"	"	
WORKSHOP MOTORS ...	3	1	4	7	0.85	12	22	48	"	"	
VENTILATING FANS LATHE	1	1	2.5	7	0.67	6	16	8	"	"	
DRILL	1	1	1.5	1	1.39	4	10	8	"	"	
GRINDING	1	1	1.5	1	1.39	2	10	8	"	"	
OIL SEPARATOR HEATERS	3	1	35	19	1.53	78-78-78	78	37-37-37	"	"	
LUBRIC. & FUEL OIL PUMPS	3	1	4	7	0.85	9-9-9	22	8-8-8	"	"	
- DO - HEATERS	3	3x6	7	1.05	68-68-68	87	5-5-5		"	"	
WATER HEATER	1	10	7	1.35	27	39	44		"	"	

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 & WAINES MASKIN- OG SKIBSBYGGERI**

Electrical Engineers.

Date 9 October 1934

**COMPASSES.**

Distance between electric generators or motors and standard compass To motor about 20 M - To generator about 35 M

Distance between electric generators or motors and steering compass " " " 16 " " 35 M

The nearest cables to the compasses are as follows:—

A cable carrying 2 Amperes 3 feet from standard compass 6 feet from steering compass.

A cable carrying 0.07 Amperes To LAMP IN feet from standard compass AND IN feet from steering compass.

A cable carrying ✓ Amperes ✓ 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 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 & WAINES MASKIN- OG SKIBSBYGGERI**

Builder's Signature.

Date 9 October 1934

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

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

The electric light and power installation as above described has been fitted in accordance with the Rules, the approved plan and the requirements contained in the Secretary's letter E dated 13<sup>th</sup> March 1934.

The material and the workmanship are of good description. The electric installation has been tested under full power working conditions and found satisfactory.

*Noted  
 L.Y.  
 18/10/34.*

Total Capacity of Generators 170 Kilowatts.

The amount of Fee ... £ 784 When applied for, 10/10/34

Travelling Expenses (if any) £ : : 3.12.34 When received, 19/10/34

*S. Clausen*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 26 OCT 1934

Assigned Elect (see Cpn 58. 9449)

2m.33L.—Transfer. The Surveyors are requested not to write on or back up the space for Committee's Minute.

