

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 11 MAY 1931

Date of writing Report 23/4 1931 When handed in at Local Office 10 Port of Copenhagen.

No. in Survey held at Nakskov. Date, First Survey 8/10 30 Last Survey 18/4 1931  
(Number of Visits...4...)

Reg. Book. 90858 on the Two Twin S. Motor Tank Vessel "HENRIK AMELN" Tons {Gross 6245.91  
Net 3646.46

Built at Nakskov. By whom built As Nakskov Skibværf Yard No. 44 When built 1931.

Owners As Frøysfart (L. Harboe Jensen & Co.) Port belonging to Oslo.

Electric Light Installation fitted by As Nakskov Skibværf. Contract No. - When fitted 1931.

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution Two conductors insulated system.

Pressure of supply for Lighting 110 volts, Heating (FINE FILTER FOR OIL) 220 volts, Power 220 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 rating 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 Yes. (2 MAIN GEN.) 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.

Position of Generators placed in the main engine room, port & starboard, floor level.

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 on a platform in the forward end of 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 ✓ and ✓

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.

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.

Yes., accessibility of all parts Yes., absence of fuses on back of board Yes., proportion of omnibus bars Yes.

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: 0 266

for each outgoing circuit: 0 266 pole linked switch and a fuse on each pole.

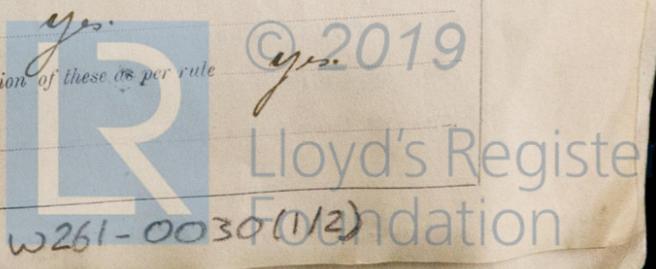
Instruments on main switchboard 5 ammeters 3 voltmeters ✓ synchronising device for paralleling purposes.

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

2 sets of earth lamps, 1 Voltmeter with Ohm scale.

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* are the cables insulated and protected as per Tables IV or V of the Rules *yes*.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *4 1/2 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 *armoured cables used, supported by clips*.

*On deck laid along side of gangway & protected by iron casing.*

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 armoured 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*

*pump room are contained in gastight glass globes with iron grids*, how are the cables led *through galvanized iron tubes banded gastight into lamp holders*.

where are the controlling switches situated *on the auxiliary switchboard in the saloon-house*.

Searchlight Lamps, No. of *None*, 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	66	220	300	400	2-cyl. Diesel engine.	crude oil.	above 150° F.
AUXILIARY	1	11.5	110	104	550	Steam engine		
EMERGENCY								
ROTARY TRANSFORMER	1	10	110	91	1600	16 HP electric motor.		

### GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet. <i>etc.</i>	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole. Sq. <i>etc.</i>	No.	Diameter. <i>etc.</i>	In Circuit.	Rate.				
MAIN GENERATOR	2	2 x 95	19	2.52	300	296	20-26	india rubber	lead covered	
EQUALISER CONNECTIONS						148	10-13	"	and steel wire	
AUXILIARY GENERATOR	1	95	19	2.16	104	124	37	"	armoured -	
EMERGENCY GENERATOR									where necessary	
ROTARY TRANSFORMER MOTOR	1	25	7	2.13	54	63	7	"	laid in iron	
ROTARY TRANSFORMER GENERATOR	1	50	19	1.83	91	98	4.5	"	tubes or shielded by steel casing.	
ENGINE ROOM										
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
ENGINE ROOM	1	6	7	1.05	14	28	4	"	"	
NAVIGATION LIGHTS	1	2.5	7	0.67	3	15.5	149	"	"	
ACCOMMODATION										
AFT	1	6	7	1.05	21	28	32	"	"	
OFFICERS	1	10	7	1.35	14	38	138	"	"	
WIRELESS	1	10	7	1.35	14	38	152	"	"	
SEARCHLIGHT										
MASTHEAD LIGHT	1	1.5	1	1.38	0.5	10	150-80	"	"	
SIDE LIGHTS	1	1.5	1	1.38	0.5	10	23	"	"	
COMPASS LIGHTS	1	1.5	1	1.38	0.2	10	10	"	"	
POOP LIGHTS	1	1.5	1	1.38	0.5	10	200	"	"	
CARGO LIGHTS										
ARC LAMPS										
HEATERS (FINE FILTER FOR FUEL OIL)	1	10	7	1.35	30	38	47	"	"	

### MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet. <i>etc.</i>	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole. Sq. <i>etc.</i>	No.	Diameter. <i>etc.</i>	In Circuit.	Rate.				
BALLAST PUMP											
MAIN BILGE LINE PUMPS											
GENERAL SERVICE PUMP											
<del>MAIN</del> BILGE PUMP	1	1	10	7	1.35	30	38	29	india rubber	lead covered	
SANITARY PUMP	1	1	4	7	0.85	14	22	15	rubber	and	
CIRC. SEA WATER PUMPS	1	1	2.5	7	0.67	7	15.5	60	"	steel wire	
CIRC. FRESH WATER PUMPS	1	1	6	7	1.05	25	28.6	62	"	armoured -	
CO <sub>2</sub> COMPRESSOR	1	1	2.5	7	0.67	3.5	15.5	60	"	where necessary	
FRESH WATER PUMP	2	1	2.5	7	0.67	10	15.5	16	"	laid in iron	
ENGINE TURNING GEAR	2	1	2.5	7	0.67	10	15.5	16	"	tubes or shielded	
ENGINE REVERSING GEAR	2	1	95	19	2.52	118	148	37	"	by steel casing.	
CALCULATING WATER AND LUBRICATING OIL PUMPS	1	1	4	7	0.85	17	22	7	"	"	
OIL FUEL TRANSFER PUMP											
WINDLASS											
WINCHES, FORWARD											
WINCHES, AFT											
STEERING GEAR-											
(a) MOTOR GENERATOR	1	1	25	7	2.13	48	63	79	"	"	
(b) MAIN MOTOR											
WORKSHOP MOTOR											
VENTILATING FANS											
LUBR. OIL PURIFIER	1	1	2.5	7	0.67	7	15.5	30	"	"	
TURNING LATHE	1	1	2.5	7	0.67	10.8	15.5	7	"	"	
DRILLING MACHINE	1	1	2.5	7	0.67	4	15.5	11	"	"	

W261-0030(2/2)

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  
 NAKSKOV SKIBSVÆRFT**

Electrical Engineers.

Date 7-5-31

*H. P. H. Christensen*

**COMPASSES.**

FOR WIRELESS  
 Distance between electric generators & motors and standard compass 8 w.  
 Distance between electric generators & motors and steering compass 6 w.  
 The nearest cables to the compasses are as follows:—  
 A cable carrying 14 Ampères 8 feet from standard compass 6 feet from steering compass.  
 A cable carrying 3 Ampères 7 feet from standard compass 6 feet from steering compass.  
 A cable carrying 0.2 Ampères 8" feet from standard compass 8" 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 any course in the case of the standard compass, and 0 degrees on any course in the case of the steering compass.

**AKTIESELSKABET  
 NAKSKOV SKIBSVÆRFT**

Builder's Signature.

Date 7. 5. 31

*H. P. H. Christensen*

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 electric light & power installation as above described has been fitted in accordance with the Society's Rules, the approved plan and the requirements contained in the Secretary's letter dated 2/7 30.  
 The dimensions are as specified, the material of good quality and the workmanship is good throughout.  
 After completion the whole installation was tested under full power working conditions as per Rules and found satisfactory.

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

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

*Elec. Light*  
*R.P.H. 17/5/31*

Total Capacity of Generators 143.5 Kilowatts.

The amount of Fee ... £. 6/2.43 When applied for, 9.5.31

Travelling Expenses (if any) £ — When received, 9/6/31

*Christoff*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

RI. 15 MAY 1931

Assigned

*Elec. Lt. 1*

Im. 11.23.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

