

Rpt. 13.

No. 8586

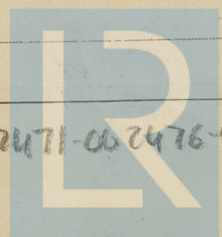
# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report 30<sup>th</sup> Dec 1931 When handed in at Local Office 30<sup>th</sup> Dec 1931 Port of GothenburgNo. in Survey held at Gothenburg Date, First Survey 22<sup>nd</sup> July Last Survey 18<sup>th</sup> Dec 1931  
Reg. Book. 14087 on the Twin Screw motor vessel "ANNA KNUDSEN" (Number of Visits.....) 9Tons { Gross 9057  
Net 5389Built at Gothenburg By whom built A.-B. Götaverken Yard No. 442 When built 1931Owners Knut Knutsen O.A.S. Port belonging to HaugesundElectric Light Installation fitted by A.-B. Götaverken Contract No. 442 When fitted 1931Is the Vessel fitted for carrying Petroleum in bulk YesSystem of Distribution Two wire-systemPressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.Direct or Alternating Current, Lighting Direct Power directIf 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 YesGenerators, do they comply with the requirements regarding rating Yes, are they compound wound Yesare 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, is an adjustable regulating resistance fitted inseries with each shunt field YesAre 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 YesPosition of Generators One at the starboard side and two at the port side of the motor room,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 Yesare their axes of rotation fore and aft YesEarthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers andtheir respective generators in metallic contact YesMain Switch Boards, where placed aft in the motor roomIf 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 Yesare they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotectedwoodwork 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 of marble, is all insulation of high dielectric strength and ofpermanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts insulated from the slabwith mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yesand is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live partsYes, accessibility of all parts Yes, absence of fuses on back of board -, proportion of omnibusbars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches YesMain Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For each generator: Adouble pole circuit breaker with overload and reversed current trips and a single pole equalizerswitchh. For each outgoing circuit: A double pole linked switch and a fuse at each pole.Instruments on main switchboard 6 ammeters 4 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 ohm meters fittedwith commutators for both poles.Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YesJoint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes

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**single and twin ones**  
**Cables:** Single, twin, concentric, or multicore **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  **$\frac{2V}{V+5}$  per cent for lighting power**  
**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 **-**  
**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 **supported by metal clips. All power cables lead covered and armoured. Lighting cables lead covered in cabins. For the rest lead covered and steel wire plaited or armoured.**  
 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 **No**. 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 main cables. Joints in section cables as pr rule.**  
**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 **-**  
 , are their connections made as per Rule **-**  
**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 **-**  
**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 **-**  
**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 **-**  
 are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **lamps contained in gastight fittings**, how are the cables led **in gastight tubing**  
 where are the controlling switches situated **outside of dangerous space**  
**Searchlight Lamps,** No. of **-**, whether fixed or portable **-**, are their fittings as per Rule **-**  
**Arc Lamps,** other than searchlight lamps, No. of **-**, are their live parts insulated from the frame or case **-**, are their fittings as per Rule **-**  
**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 **all except the turning motors.** 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 **-**, if not of this type, state distance of the combustible material horizontally or vertically above the motors **-** and **-**  
**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 ...	3	66	220	300	400	Diesel engine	Dieseloil	Above 150° F		
AUXILIARY ...										
EMERGENCY ...										
ROTARY TRANSFORMER	1	14 kw.	220 110	80 125	1350					
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	No. of	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) <del>xxx</del> met	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. <del>xxmm</del>	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	2	190	19	2.52	300	48-48-56	Rubber	Lead covered and		
EQUALISER CONNECTIONS	2	190	19	2.52	300	48-48-56	"	steel armoured		
AUXILIARY GENERATOR...										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER { MOTOR	1	25	7	2.13	80	10	"	" " " " "		
GENERATOR... { GENERATOR...	1	70	19	2.17	125	10	"	" " " " "		
ENGINE ROOM... {										
BOILER ROOM... {	1	4	7	0.86	10	1	"	" " " " "		
AUXILIARY SWITCHBOARDS										
Heating board aft	1	50	19	1.83	90	28	"	" " " " "		
" " midsh.	1	35	19	1.53	75	193	"	" " " " "		
" " forw.	1	25	7	2.17	35	298	"	" " " " "		
ACCOMODATION aft	1	6	7	1.05	23	28	"	" " " " "		
" midships	1	16	7	1.71	20	193	"	" " " " "		
" forward	1	10	7	1.35	10	298	"	" " " " "		
Lanterns	1	4	7	0.86	2.5	213	"	" " " " "		
WIRELESS	1	10	7	1.35	20	208	"	" " " " "		
SEARCHLIGHT										
MASTHEAD LIGHT	1	1.5	1	1.38	0.5	100-140	"	" " " " "		
SIDE LIGHTS	1	1.5	1	1.38	0.5	40-40	"	" " " " "		
COMPASS LIGHTS	1	1.5	1	1.38	0.5	20	"	" " " " "		
POOP LIGHTS	1	1.5	1	1.38	0.5	220	"	" " " " "		
CARGO LIGHTS										
ARC LAMPS										
HEATERS	1	2.5	1	1.78	5	-	"	lead covered		
MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) <del>xxx</del> met	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. <del>xxmm</del>	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...	1	1	10	7	1.35	36	48	rubber	Lead covered and	
MAIN BILGE LINE PUMPS									steel armoured	
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP ...	1	1	10	7	1.35	32	36	"	" " " " "	
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS...	1	1	1.5	1	1.38	8	10	"	" " " " "	
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR...	2	1	4	7	0.86	23	58-58	"	" " " " "	
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	120	37	2.03	198	24-24	"	" " " " "	
OIL FUEL TRANSFER PUMP...	1	1	6	7	1.05	28	58	"	" " " " "	
WINDLASS	1	2	140	19	2.17	315	305	"	" " " " "	
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) <del>MOTOR CONDUCTOR</del> ...										
(b) MAIN MOTOR	2	1	70	19	2.17	120	81	"	" " " " "	
WORKSHOP MOTOR	1	1	2.5	1	1.78	12	56	"	" " " " "	
VENTILATING FANS										
Fuel oil separator	1	1	10	7	1.35	35	36	"	" " " " "	
Refrigerator	1	1	6	7	1.05	30	24	"	" " " " "	
Lubr. oil separator	1	1	1.5	1	1.38	8	32	"	" " " " "	
Coaling w. pump	1	1	1.5	1	1.38	8	12	"	" " " " "	



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.

A.-B. Götaverken

Electrical Engineers.

Date 30.XII. 1931

#### COMPASSES.

Distance between electric generators or motors and standard compass about 30 met.

Distance between electric generators or motors and steering compass about 30 met.

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass feet from steering compass.

A cable carrying Ampères feet from standard compass 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.

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

AKTIEBOLAGET GÖTAVERKEN

Builder's Signature. Date 30.XII.31.

Is this installation a duplicate of a previous case Yes If so, state name of vessel M/S "Kaia Knudsen"

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

This Electric Installation has been fitted on board this vessel under my inspection and has been tested and found satisfactory.

The workmanship is good.

All the Rule requirements have been complied with.

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

Elec. Light

21/5/32

Total Capacity of Generators 198 Kilowatts.

The amount of Fee ... £ 662.48 : When applied for, 30.12.1931  
Travelling Expenses (if any) £ : : When received, 28/1/32

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 8 JAN 1932

Assigned

Elec Lt



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