

Rpt. 13.

No. 8586

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report 30th Dec 1931 When handed in at Local Office 30th Dec 1931 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey 22nd July Last Survey 18th Dec 1931
Reg. Book. 14087 on the Twin Screw motor vessel "ANNA KNUDSEN" (Number of Visits..... 9)

Tons { Gross 9057
Net 5389

Built at Gothenburg By whom built A.-B. Götaverken Yard No. 442 When built 1931

Owners Knut Knutsen O.A.S. Port belonging to Haugesund

Electric Light Installation fitted by A.-B. Götaverken Contract No. 442 When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wire-system

Pressure of supply for Lighting 110 volts, Heating 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, 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 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 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 aft 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 - 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 micaite 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 -, 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 double pole circuit breaker with overload and reversed current trips and a single pole equalizer switch. 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 fitted with commutators for both poles.

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 and twin ones 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 $\frac{2V+3}{2V+5}$ 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	66	220	300	400	Diesel engine	Disselloil	Above 150° F
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER	1	14 kw.	220 110	80 125	1350			

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) in met	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. mm	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR	2	190	19	2.52	300		48-48-56	Rubber	Lead covered and steel armoured	
EQUALISER CONNECTIONS	2	190	19	2.52	300		48-48-56	"	"	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER MOTOR	1	25	7	2.13	80		10	"	"	
ROTARY TRANSFORMER 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) in met	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. mm	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	10	7	1.35	36	48	rubber	Lead covered and steel armoured	
MAIN BILGE LINE PUMPS										
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) MOTOR										
(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
[Signature] 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.
[Signature]
 28/1/32

Total Capacity of Generators **198** Kilowatts.

The amount of Fee ... **R 662.48** : **30/12/31** (When applied for,)
 Travelling Expenses (if any) £ : : **28/1/32** (When received,)

[Signature]
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 8 JAN 1932**

Assigned *[Signature]*

Im. 1223.—Transfer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)