

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report *25/7* 19*28* When handed in at Local Office *19* Port of *Copenhagen* Received at London Office *7* *AUG 1928*

No. in Survey held at *Nakskov* Date, First Survey *27/4 28* Last Survey *14/7* 19*28*
Reg. Book. (Number of Visits *10*)

on the *Twin Sc. Motor vessel "HILDA KNUDSEN."*

Tons { Gross *9177.78*
Net *5481.66*

Built at *Nakskov* By whom built *as Nakskov Skibsværft* Yard No. *32* When built *1928*

Owners *Knut Knutsen* Port belonging to *Slæggesind*

Electric Light Installation fitted by *as Nakskov Skibsværft* Contract No. *-* When fitted *1928*

System of Distribution *2 conductor insulated 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 *fitted in the motor room, 1 on starboard side, 2 on port side*,
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 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 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*.

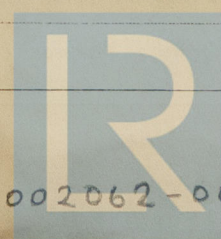
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches *for each generator: a 2 pole circuit breaker with overload and reverse current trip and equalizer switch as per section par. 3, clause A (f). Outgoing circuits: a 2 pole linked switch with fuse on 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 *2 sets of earth lamps, one of the voltmeters fitted with a 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*.



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002062-002070-0063 1/2

Cables: Single, twin, concentric, or multicore *single* are the cables insulated and protected as per Tables IV and V of the Rules *yes*.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *7.5 lbs.*

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, uplakes 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, laid on steel plate supported by clips, on decks shielded by strong sheet iron casing along one side of gangway.*

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 *the lamps in the pump room are contained in gastight glass globes protected by grid-iron. how are the cables led through gastight, galvanized iron tubes, secured into the lamp fittings.*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *where are the controlling switches situated on a switchboard placed in a gastight steel plate, sheet built into the pump casing and only accessible from the deck through a watertight cover.*

Searchlight Lamps, No. of *1*, whether fixed or portable *yes*, are their fittings as per Rule *yes*.

Are Lamps, other than searchlight lamps, No. of *1*, 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*.

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 *only battery fed portable lamps used.*

PARTICULARS OF GENERATING PLANT.						WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
DESCRIPTION OF GENERATOR.	No. of	Kilowatts.	RATED AT			DRIVEN BY	Fuel Used.	Flash Point of Fuel.
			Volts.	Amps.	Revs. per Min.			
MAIN	2	66	220	300	400	Two 2-cyl. Diesel engines.	Ord. Diesel oil	Above 150°F.
AUXILIARY	1	33	220	150	400	One 1-cyl. " " "	" " " "	" " " "
EMERGENCY	1	50	250	200	1235	2-cyl. Horizontal Engine	" " " "	" " " "
ROTARY TRANSFORMER	1	9	110	81.8	1500	Electric motor.	" " " "	" " " "

LIGHTING AND HEATING CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	2	2.95	19	2.52	300	62-48	india	the cables are
	EQUALISER CONNECTIONS	1	95-70	19	2.52	150	31-24-27	rubber	lead covered and
	AUXILIARY GENERATOR	2	95	19	2.52	150	54	"	steel wire armoured
	EMERGENCY GENERATOR	2	35	19	1.53	81.8	10	"	"
	ROTARY TRANSFORMER...	2	10	7	1.35	10	8	"	"
	AUXILIARY SWITCHBOARDS	2	6	7	1.05	23	27	"	"
	ENGINE ROOM	2	4	7	0.85	20	180	"	"
	BOILER ROOM	2	4	7	0.85	20	180	"	"
	ACCOMMODATION	2	4	7	0.85	20	180	"	"
	OFFICERS	2	4	7	0.85	20	180	"	"
	FORWARD	2	4	7	0.85	20	180	"	"
	CHART ROOM	2	2.5	7	0.67	13	136	"	"
	PUMP ROOM	2	2.5	7	0.67	13	136	"	"
	WIRELESS	2	6	7	1.05	20	200	"	"
	SEARCHLIGHT	1	1.5	1	1.38	1	110-136	india	the cables are
	MASTHEAD LIGHT...	1	1.5	1	1.38	1	40	rubber	lead covered and
	SIDE LIGHTS	1	1.5	1	1.38	0.14	14	"	steel wire armoured
	COMPASS LIGHTS	1	1.5	1	1.38	1	216	"	"
	POOP LIGHTS	1	1.5	1	1.38	2	30	"	"
	CARGO LIGHTS	1	1.5	1	1.38	2	30	"	"
	ARC LAMPS	2	2.5	7	2.13	41	284	"	"
	HEATERS	2	50	19	1.83	82	180	"	"
		2	70	19	2.16	94	22	"	"

MOTOR CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
7.5	BALLAST PUMP	1	10	7	1.35	25	46	india	the cables are
	MAIN BILGE LINE PUMPS	1	10	7	1.35	25	46	rubber	lead covered and
	GENERAL SERVICE PUMP	1	10	7	1.35	25	46	"	steel wire armoured
9	EMERGENCY BILGE PUMP	1	6	7	1.05	30	40	"	"
	SANITARY PUMP	1	6	7	1.05	30	40	"	"
35	CIRC. SEA WATER PUMPS	2	95	19	2.52	120	12	"	"
	CIRC. FRESH WATER PUMPS	1	6	7	1.05	23	14	"	"
7	AIR COMPRESSOR	1	2.5	7	0.67	7	42	"	"
2	FRESH WATER PUMP	2	6	7	1.05	20	30	"	"
6	ENGINE TURNING GEAR	1	4	7	0.85	17	46	"	"
	ENGINE REVERSING GEAR	1	4	7	0.85	17	46	"	"
5	LUBRICATING OIL PUMPS	1	4	7	0.85	17	46	"	"
58	OIL FUEL TRANSFER PUMP	1	2.70	19	2.16	200	300	"	"
	WINDLASS	1	2.70	19	2.16	200	300	"	"
	WINCHES, FORWARD	1	2.70	19	2.16	200	300	"	"
	WINCHES, AFT	1	2.70	19	2.16	200	300	"	"
	STEERING GEAR	1	2.70	19	2.16	200	300	"	"
34	(a) MOTOR GENERATOR	1	70	19	2.16	100	35	"	"
3	(b) MAIN MOTOR	1	2.5	7	0.67	10	60	"	"
	WORKSHOP MOTOR	1	2.5	7	0.67	10	60	"	"
	VENTILATING FANS	1	2.5	7	0.67	10	60	"	"
0.75	COOLING WATER PUMP	1	2.5	7	0.67	3	12	"	"
	COL. COMPRESSOR	1	16	7	1.70	50	10	"	"
14	MOTOR-GENERATOR	1	2.5	7	0.67	1	32	"	"
0.25	FAN IN GALLEY	1	2.5	7	0.67	1	32	"	"
3	OIL PURIFIERS	2	2.5	7	0.67	10	34	"	"

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.

NAKSKOV SKIBSVÆRFT

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators ^{FOR WIRELESS} and standard compass *ca. 8 m.*

Distance between electric generators ^{FOR WIRELESS} and steering compass *ca. 10 m.*

The nearest cables to the compasses are as follows:—

A cable carrying *8* Amperes *6* feet from standard compass *7* feet from steering compass.

A cable carrying *1* Amperes *28* feet from standard compass *6* feet from steering compass.

A cable carrying *0.2* Amperes *10"* feet from standard compass *10"* 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.

NAKSKOV SKIBSVÆRFT

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 Electric Light & Power Installation as above described has been fitted in accordance with the Society's Rules, the approved diagrams and the requirements contained in the Secretary's letter & dated 20/6 27.

The material used for the installation is of generally good description throughout and the workmanship of high quality.

On completion the whole installation was tested under full power working conditions 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

20/8/28.

Total Capacity of Generators *165* Kilowatts.

The amount of Fee ... *£ 632.45* When applied for, *4.8.28.*
Travelling Expenses (if any) £ ... : When received, *24.11.28*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Elec. Light



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