

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 15th JAN. 1937 When handed in at Local Office

Received at London Office 29 JAN 1937

No. in Survey held at HAMBURG Date, First Survey 19th NOV. Last Survey 29th DEC 1936

Reg. Book. on the STEELSS "HOEGH SILVERLIGHT" (Number of Vols. 12)

Built at HAMBURG By whom built DEUTSCHE WERFT AG Yard No. 120 When built 1936

Owners SKIBS A/S: NORUEGA, ASTREA, ARUBA, ABACO. Port belonging to OSLO

Electric Light Installation fitted by A. E. G. HAMBURG Contract No. - When fitted 1936

Is the Vessel fitted for carrying Petroleum in bulk NO.

Tons { Gross 5197.
Net 3186

System of Distribution single pole - hull return

Pressure of supply for Lighting 220 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 temperature rise 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

approved yes Have certificates of test results for machines under 100 kw. been submitted and approved ✓

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 Engine Room - 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 Engine Room Port Forward on elevated platform.

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

is it of an approved type 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 ✓

is the non-hygroscopic insulating material of an approved type ✓, 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, temperature rise of omnibus bars yes

individual fuses to voltmeter, pilot or earth lamp yes, are moving parts of switches alive in the "off" position no

are all screws and nuts securing connections effectively locked yes are any fuses fitted on the live side of switches no

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For each Generator: A single-pole circuit breaker with overload and reversed current trip and a single-pole equalizer switch. For each outg. circuit: A single-pole fuse and switch on the insulated pole.

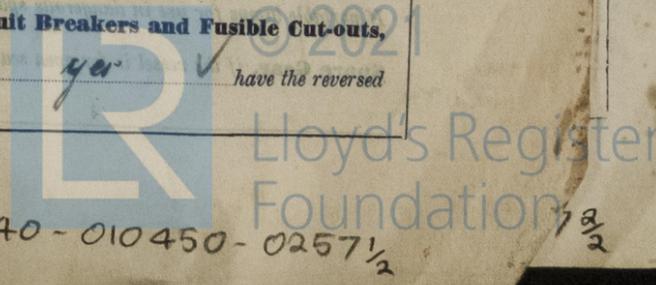
Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material ✓

Instruments on main switchboard 5 ammeters 3 voltmeters ✓

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection yes

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

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes are the fusible cutouts of an approved type yes have the reversed ✓



current protection devices been tested under working conditions yes **Joint Boxes, Section and Distribution Boards**, is the construction, protection, insulation, material, and position of these as per rule yes *The German Standards have been applied*

Cables: Single, main, concentric, or multicore yes are the cables insulated and protected as per Tables IV, V, X or XI of the Rules generally

If the cables are insulated otherwise than as per Rule, are they of an approved type yes **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load lighting 4 Volts - power 5 Volts

area of 0.04 square inch and above provided with soldering sockets yes **Cable Sockets**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets yes **Paper Insulated and Varnished Cambric Insulated Cables**, If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound ✓, or waterproof insulating tape ✓ **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 Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit lead covered and armoured

Support and Protection of Cables, state how the cables are supported and protected Cable runs, clipped, armoured cables

If cables are run in wood casings, are the casings and caps secured by screws ✓, are the cap screws of brass ✓, are the cables run in separate grooves ✓ If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII yes

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements yes

Joints in Cables, state if any, and how made, insulated, and protected water-tight - joint boxes

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 Each conductor to the ship's hull - same - of the same area as the corresponding conductor of the insulated portion. 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 ✓

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 ✓ how are the cables led ✓

where are the controlling switches situated ✓

are all fittings suitably ventilated ✓, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials ✓

Heating and Cooking Appliances, are they constructed and fitted as per Rule ✓, are air heaters constructed and fitted as per Rule ✓

Searchlight Lamps, No. of not fitted, 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 yes with exception of Refrig. Compressor + Steering Gear are they 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 ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing ✓ **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 ✓ **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 ✓ are all fuses of the filled cartridge type ✓ are they of an approved type ✓

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule 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	3 x 90	230	391	460	4 cyl. 450 S.A. Diesel Engine	Diesel oil	170° F.		
AUXILIARY										
EMERGENCY										
ROTARY TRANSFORMER	1	220	10	1666		200/500 Cycle 1/4 Phase.				
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return.)	Insulated with	HOW PROTECTED.	
	No. per Pole.	Total Nominal Area per Pole Sq. Mm.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR	1	400	91	2.37	391	391.8	10-13-16			
EQUALISER CONNECTIONS	1	185	61	1.97	507	232.7	10-13-16			
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER MOTOR GENERATOR										
ENGINE ROOM	12x1	1.5	1	1.38	carb 2	9.4	12x10			
BEAM ROOM	I	16	19	1.04	4	49	70			
AUXILIARY SWITCHBOARDS	I	16	19	1.04	5	49	70			
"	II	2.5	1	1.78	3.5	15.5	72			
"	III	120	61	1.59	173	172.2	112			
"	IV	16	19	1.04	11	49	52			
"	V	16	19	1.04	11	49	50	rubber.	lead covered and armoured.	
"	VI	120	61	1.59	169	172.2	84			
Accumulators	IV	120	61	1.59	173	172.2	86			
"	V	95	37	1.82	212	190.5	150	X		
"	VI	240	91	1.84	272	271.8	142			
"	VII	35	19	1.53	70	77.7	46			
"	VIII	150	61	1.77	187	205.6	42			
WIRELESS	I	25	19	1.3	10	63.2	78			
SEARCHLIGHT	NAVAL LIGHTS	1	2.5	1	1.78	4	15.5	13		
MASTHEAD LIGHT	2x1	1.5	1	1.38	0.5	9.4	F. 112 d. 83			
SIDE LIGHTS	2x1	1.5	1	1.38	0.5	9.4	24			
COMPASS LIGHTS	2x1	1.5	1	1.38	0.5	9.4	20			
POOP LIGHTS	1	1.5	1	1.38	0.5	9.4	98			
CARGO LIGHTS	1	2.5	1	1.78	5.4	15.5	30			
HEATERS	OIL FUEL	1x3 3x4	19	0.52	2.2	22.1	12			
	LUB. OIL	1x3 3x4	19	0.52	2.2	22.1	12			
	TREBUIC FILTER	1	10	19	0.82	42	38.1	55		
MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return.)	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Nominal Area per Pole Sq. Mm.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	50	19	1.82	96	98.3	48		
MAIN BILGE LINE PUMPS	2	1	16	19	1.04	45	49	25		
GENERAL SERVICE PUMP	1	1	35	19	1.3	57	63.2	16		
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	16	19	1.04	43.5	49	18		
CIRC. SEA WATER PUMPS	2	2	240	91	1.84	350	271.8	22		
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1	1	4	19	0.52	16.6	22.1	19		
FRESH WATER PUMP	1	1	10	19	0.82	42	38.1	55		
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	1	1	25	19	1.3	58	63.2	30	rubber.	lead covered and armoured.
OIL FUEL TRANSFER PUMP	1	1	35	19	1.53	83	77.7	28		
WINDLASS	1	1	95	37	1.81	212	190.5	25		
WINCHES, FORWARD	8	1	35	19	1.53	83.5	84.7	20.		
WINCHES, AFT	4	1	35	19	1.53	83.5	84.7	20.		
STEERING GEAR										
(a) MOTOR GENERATOR	1	1	25	19	1.3	38	63.2	90		
(b) MAIN MOTOR	1	1	25	19	1.3	34	63.2	10		
WORKSHOP MOTOR	3	1	carb 1.5	1	1.38	carb 8.7	9.4	12		
VENTILATING FANS	2	1	4	10	0.52	6.6	22.1	16		
Refriger. Compressor	2	2	35	19	1.53	82	77.7	7		
Small	1	1	6	19	0.64	24	28.7	9		
Cool. Water P.	1	1	2.5	1	1.78	12.6	15.5	10		
Veget. Oil Transf. P.	1	1	150	61	1.77	177	205.6	30		
Operator. Feed. Lub. Oil	2	1	2.5	1	1.78	12.6	15.5	19		
Jan. Eng. Room	2	1	4.5	1	1.38	8.7	9.4	12		
Refriger. Compressor	2	1	2.5	1	1.78	12	15.5	11.		

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

DEUTSCHE VEREINIGUNG
VON
SCHIFFBAU
UNTERNEHMERN
HAMBURG
K. K. K.

Electrical Engineers.

Date 23. 1. 1937

COMPASSES.

Distance between electric generators or motors and standard compass 5m } double wired in vicinity of
Distance between electric generators or motors and steering compass 3m } compass.

The nearest cables to the compasses are as follows:—

A cable carrying 0.3 Ampères close to feet from standard compass 100 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? *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 nil degrees on " course in the case of the standard compass, and nil degrees on " course in the case of the steering compass.

DEUTSCHE VEREINIGUNG
VON
SCHIFFBAU
UNTERNEHMERN
HAMBURG
K. K. K.

Builder's Signature.

Date 23/1/1937

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. *material and workmanship*)

of this Electric Installation are of good quality. As the conductors used are of the "German Standard" the Society's Rules regarding to conductors have been applied generally. The installation has been fitted under Special Survey in accordance with the approved plans, the Secretary's Letters and otherwise in compliance with the requirements of the Rules and is eligible, in my opinion to be classed in the Society's Reg. No.

Total Capacity of Generators 270 Kilowatts.

The amount of Fee ... *RM. 920* ... *19.37*

Travelling Expenses (if any) £ *3.4* ... *19.37*

Friedrich Hill
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 9 FEB 1937

TUE 8 JUN 1937

Assigned

See Ham. J.E. 22176

FRI 3 SEP 1937

3m. 5. 5. 4. — Transfer.
The Society's Officers are requested not to write on or below the space for Committee's Minute.



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