

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office JAN 18 1938

Date of writing Report 9/1 1938 When handed in at Local Office 19 Port of Copenhagen
 No. in Survey held at Copenhagen Date, First Survey 4/12 37 Last Survey 9/1 1938
 Req. Book. 38482 on the single sc. motor vessel "HÖEGH SILVERSTAR" (Number of Visits 10)
 Tons { Gross 5415
 Net 3260
 Built at Copenhagen By whom built A/S Bismark & Wain Yard No. 631 When built 1937
 Owners SKIBS A/S NORVEGA SKIBS A/S ABACO
ARUBA - " - ASTREA Port belonging to Oslo
 Electric Light Installation fitted by A/S Bismark & Wain Contract No. When fitted 1937
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two conductor insulated system.

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.

Have certificates of test results for machines under 100 kw. been submitted and approved yes. Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing yes.

Have certificates for generators under 100 kw. been supplied 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 in engine room, 1 port side, 2 starboard side (in and out board), 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 in the engine room, starboard side, accessible from the working floor.

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.

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 yes., is the non-hygroscopic insulating material of an approved type 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., 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 2 pole pole circuit breaker with overload & reverse current trip & equalizer on port side, 3, 3 A (f); OUTGOING CIRCUITS: a 2 pole pole circuit breaker and a fuse on each 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 yes. Instruments on main switchboard 6 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 1 megohm meter fitted with 2 scale, 1 set of earth 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* are all fuses labelled as per rule *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* are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules *yes*

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 *Light 6 Volt, power 8 Volts* **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 of the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *yes*, or waterproof insulating tape *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* are cables laid under machines or floorplates *no* if so, are they adequately protected *yes*

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit *lead covered and armoured cables armoured and cables armoured and supp. by gate, then necessary cases in*

Support and Protection of Cables, state how the cables are supported and protected *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, 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*

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 *lamps in refrigerated chambers 6 sq. in. Leathers wire, 6 sq. in.* 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* are they ventilated as per Rule *yes*

Fittings, are all fittings on weather decks, in storerooms 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 *lamps in refrigerated chambers protected by strong iron grids* are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *yes* how are the cables led *yes*

where are the controlling switches situated *yes*

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

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

Searchlight Lamps, No. of *yes* whether fixed or portable *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* have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *yes* have certificates for all motors for essential services been supplied and approved *yes* **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *yes* **Lighting 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* are all fuses of the filled cartridge type *yes* are they of an approved type *yes* If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces *yes* **Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule *yes* are they suitably stored in dry situations *yes*

PARTICULARS OF GENERATING PLANT.

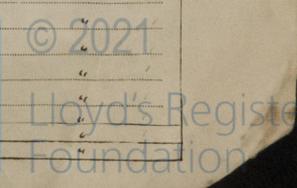
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	120	220	545	400	3-cyl. 2500 DIESEL	CRUDE OIL	150° F
AUXILIARY						OIL ENGINES		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	2	2.240	61	2.25	545	544	48 38-42	VULC. RUBBER LEAD COVERED	
EQUALISER CONNECTIONS		2.40	61	2.25		272	24-17-21	"	AND ARMOURED
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM LIGHT	1	10	7	1.35	16	38	10	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
WATER HEATING ETC.	1	50	19	1.83	86	98	38	"	"
SALOON HOUSE	1	10	7	1.70	44	48	62	"	"
GALLEY FORE	1	10	7	1.35	32	38	128	"	"
LAUNDRY ETC.	1	25	19	1.80	57	63	175	"	"
ACCOMMODATION									
SALOON LIGHT	1	10	7	1.35	14	38	90	"	"
OFFICERS	1	0	7	1.05	14	28	44	"	"
NAVIGATION	1	2.5	7	0.67	2	15	130	"	"
CREW	1	2.5	7	0.67	7	15	172	"	"
FORECASTLE	1	2.5	7	0.67	10	15	150	"	"
WIRELESS	1	10	7	1.35	9	38	110	"	"
SEARCHLIGHT									
MASTHEAD LIGHT FOREMAIN	1	1.5	1	1.37	0.2	10	92-168	"	"
SIDE LIGHTS	1	1.5	1	1.37	0.2	10	24-24	"	"
COMPASS LIGHTS	1	1.5	1	1.37	0.1	10	8	"	"
POOP LIGHTS	1	1.5	1	1.37	0.2	10	200	"	"
CARGO LIGHTS	1	1.5	48	0.2	0.5	10	25	"	"
HEATERS WASH. MACH. PRESS	2	2.6	7	1.05	2.20	2.28	6	"	"
	2	2.15	1	1.37	2.4	2.10	6	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Nominal Area per Pole Sq. ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	50	19	1.83	86	98	24	VULC. RUB. LEAD COVERED	
STEERING WINDING MAIN DRIVE LITE PUMP	1	1	4	7	0.85	10	22	12	BER	AND ARMOURED
BALL PUMP FEEDER GENERAL SERVICE PUMP	2	1	50	19	1.83	95	98	38	"	"
EMERGENCY BILGE PUMP AND SANITARY PUMP	1	1	16	7	1.70	35	48	69	"	"
CIRC. SEA WATER PUMPS	2	1	70	37	1.55	100	130	40-50	"	"
CIRC. FRESH WATER PUMPS	1	1	50	19	1.83	85	98	44	"	"
NH3 COMPRESSORS	2	1	25	19	1.30	52	63	15	"	"
CIRCULATING FRESH WATER PUMP AUXIL.	1	1	6	7	1.05	14	28	10	"	"
ENGINE TURNING GEAR	1	1	16	7	1.70	27	48	20	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	185	37	2.52	200	233	40-42	"	"
OIL FUEL TRANSFER PUMP	1	1	16	7	1.70	40	48	71	"	"
WINDLASS - 2 WINCHES	3	1	150	37	2.27	175	250	140	"	"
WINCHES, FORWARD	4	1	185	37	2.52	330	335	134	"	"
" " " "	2	1	25	37	1.80	105	195	38	"	"
WINCHES, AFT	5	1	185	37	2.52	333	335	115	"	"
REFR. MACH. FEEDER STEERING GEAR	7	1	150	37	2.27	200	205	58	"	"
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	10	19	1.83	75	98	166	"	"
WORKSHOP MOTOR	4	1	6	7	1.05	16	28	20	"	"
VENTILATING FANS	2	1	10	7	1.35	28	38	116-126	"	"
CARGO OIL PUMP	1	1	95	37	1.80	135	147	80	"	"
OIL PURIFIERS	3	1	4	7	0.85	8	22	10	"	"
COOL. WATER P. NH3 COND.	1	1	4	7	0.85	14	22	18	"	"
" " " " " "	1	1	1.5	1	1.37	3.5	10	10	"	"
NH3 COMPRESS. PROVISION	1	1	10	7	1.35	22	38	15	"	"
BLOWER FOR DONK. BOILER	1	1	2.5	7	0.67	5	15	12	"	"
OIL FUEL PRESS. PUMP	1	1	1.5	1	1.37	2	10	10	"	"
CENTR. DRYING MACH.	1	1	1.5	1	1.37	3	10	4	"	"
WASHING MACH.	1	1	1.5	1	1.37	2	10	8	"	"



The Electrical Equipment is installed in accordance with the approved plans.

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

The foregoing is a correct description.

AKTIESELSKABET
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

A. Honnold

Electrical Engineers.

Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass GEN. 33 m, MOTOR 11 m.

Minimum distance between electric generators or motors and steering compass - 33 m - 10 m.

The nearest cables to the compasses are as follows:—

A cable carrying 2 Ampères 3 feet from standard compass 3 feet from steering compass.

A cable carrying 0.07 Ampères to lamp in feet from standard compass and to lamp in 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 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
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

A. Honnold

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 installations herein described has been fitted and tested in accordance with the Society's Rules, the approved plans and the requirements contained in the Secretary's letters E dated 23/7, 27/7 & 21/8 1937. The material used is of good description throughout and the workmanship of high standard.

Total Capacity of Generators 360 Kilowatts.

The amount of Fee ... *DK 1131.26* When applied for, 19. 1. 38

Travelling Expenses (if any) *50.00* When received, 9/3. 38

Ch. Nielsen
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI 11 FEB 1938*

Assigned *See Cpn. No. 10438*

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



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