

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 11th Apr. 40 When handed in at Local Office 19th April, 40 Port of GOTHENBURG.

No. in Survey held at GOTHENBURG Date, First Survey 25.8.39 Last Survey 4th April, 19 40.
Reg. Book. Suppl. (Number of Visits 25)41519 on the Vardefjell Tons { Gross 8316
Net 4939

Built at Gothenburg. By whom built Briksbergs M.V.A/B Yard No. 292 When built 1940

Owners A/S Filefjell Port belonging to OSLO.

Electric Light Installation fitted by Allmänna Svenska Elektriska AB. Contract No. 18940 When fitted 1940

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Parallel system. Two wire.

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct current Power Direct current

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 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 in the engine 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 in the engine 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

is it of an approved type 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, 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 double pole circuit breaker with overload and reversed current trip and
a single pole equalizer switch. For each outgoing circuit two fuses and a double pole switch.

Are turbine driven generators fitted with emergency trip switch as per rule. No turbine dr. gen. Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material hard wood Instruments on main switchboard 4 ammeters 4

voltage meters 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

One ohm-meter 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 & 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 **-** **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load **below allowance permitted** **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 laid under machines or floorplates **Yes** if so, are they adequately protected **Yes** **All cables are lead cov. supp. by metal clips. All power cables lead cov. & arm. Light cables in cabins lead cov. otherwise arm. or steelwireplated.**

Support and Protection of Cables, state how the cables are supported and protected **Yes** **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, are the cables and fittings in accordance with the special requirements **Yes**

Joints in Cables, state if any, and how made, insulated, and protected **Main cables are not jointed, section cables are jointed in porcelain boxes and boxes 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 **of lead**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **Earthing connections fitted to lead covering and arm. of cables as pr Rule** 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 **None** are they ventilated as per Rule **-**

Fittings, are all fittings on weather decks, ~~in hold~~ 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 **None**

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 in gastight fittings.** how are the cables led **in gastight tubing.**

where are the controlling switches situated **outside above spaces**

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 **1** whether fixed or portable **portable**, 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** **except turning motor.** 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 **-** and **-**

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing **None** 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** **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** 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	2	100	220	455	350	Diesel oil engine	Diesel oil	Above 160° F
AUXILIARY ...	1	12	110	109	500	Steam engine		
EMERGENCY ...								
ROTARY TRANSFORMER	1	14	110	127	1380	Electric motor 220 V		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole	No.	Diameter.	Circuit.	Rate.			
MAIN GENERATOR	3	95	37	1.81	455	450	40	Rubber	Lead covered and
EQUALISER CONNECTIONS ...	3	95	37	1.81		450		"	arm. "
AUXILIARY GENERATOR ...	1	70	19	2.17	109	124	50	"	"
EMERGENCY GENERATOR ...									
ROTARY MOTOR ...	1	50	19	1.83	85	100	14	"	"
TRANSFORMER GENERATOR...	1	95	37	1.81	127	149	14	"	"
ENGINE ROOM... ..									
BOILER ROOM... ..									
AUXILIARY SWITCHBOARDS ...									
<u>Light Distr. Boards</u>									
Deck Light Forw.	1	4	7	0.86	12	22	280	"	"
Midships	1	10	7	1.35	30	38	190	"	"
Officers Acc.	1	4	7	0.86	20	22	50	"	"
Crews Acc.	1	4	7	0.86	20	22	60	"	"
ACCOMMODATION									
Navigation	1	2.5	7	0.67	5	16	220	"	"
Engine Room	1	4	7	0.86	18	22	4	"	"
Fans	1	4	7	0.86	12	22	65	"	"
WIRELESS	1	16	7	1.73	16	50	210	"	"
SEARCHLIGHT	1	16	7	1.73	24	50	280	"	"
MASTHEAD LIGHT									
SIDE LIGHTS									
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
HEATERS	1	25	19	1.29	55	62.5	34	"	"
Lubr. Oil	1	10	7	1.35	36	38	30	"	"
Fuel Oil									

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.	Rate.			
BALLAST PUMP	1	1	35	19	1.53	76	78	80	Rubber	Lead covered and
Refr. Cool	1	1	2.5	7	0.67	8.7	16	50	"	armoured.
Refr. Co. - Compr.	1	1	10	7	1.35	29	38	40	"	"
EMERGENCY BILGE PUMP ...										
SANITARY PUMP Bilge-	1	1	10	7	1.35	31.3	38	30	"	"
CIRC. SEA WATER PUMPS ...	2	2	70	19	2.17	226	148	50	"	"
Lubr. Oil Pumps	1	1	35	19	1.53	76	78	30	"	"
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR ...	1	1	25	19	1.29	64	62.5	60	"	"
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...										
OIL FUEL TRANSFER PUMP ...	1	1	10	7	1.35	29.4	38	30	"	"
WINDLASS										
WINCHES, FORWARD										
Aux. Cool W. Pump	1	1	2.5	7	0.67	8.7	16	20	"	"
WINCHES, AFT										
Telfer	1	1	4	7	0.86	17	22	40	"	"
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR	1	1	50	19	1.38	95.5	100	80	"	"
WORKSHOP MOTOR	1	1	6	7	1.05	24	29	30	"	"
VENTILATING FANS										
Lubr. Oil Sep.	1	1	2.5	7	0.67	10.4	16	70	"	"
Fuel Oil Sep.	1	1	2.5	7	0.67	10.4	16	30	"	"
Reserve Sep.	1	1	2.5	7	0.67	13	16	40	"	"
Grinder	1	1	2.5	7	0.67	8.2	16	40	"	"
Galley	1	1	25	19	1.25	55	63	50	"	"

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.

Electrical Engineers.

Date 11.4.1940

COMPASSES.

Minimum distance between electric generators or motors and standard compass about 8 metres (wireless)

Minimum distance between electric generators or motors and steering compass " 6 " "

The nearest cables to the compasses are as follows:—

A cable carrying 5 Amperes 12 feet from standard compass 12 feet from steering compass.

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

A cable carrying Amperes 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 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

Eriksbergs Mek. Verkstads AB Helsingborg

Builder's Signature

Date 16.4.40

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, etc.)

The electrical installation of this vessel has been fitted on board under my inspection and has been tested and found satisfactory.

The workmanship is good and the Rule requirements have been complied with.

The Society's test certificates of the 100 Kw. generators, also the Makers' test certificates in respect of the 12 Kw. generator and the motors for essential purposes, are attached.

Total Capacity of Generators 212 Kilowatts.

The amount of Fee Got. a/c Kr. 656:-- When applied for April 40

Cpn. a/c " 164:--

Travelling Expenses (if any) £ : : When received May 40

Cpn. a/c " 37:40

Committee's Minute

Assigned

J. Aspelin
Surveyor to Lloyd's Register of Shipping.

MAY 1940

See fol. J.E. 12922

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