

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office JUL 17 1937

Date of writing Report 5th July 1937. When handed in at Local Office 10

Port of Copenhagen

No. in Survey held at

Copenhagen

Date, First Survey

24th February

Last Survey

1st July

1937

Reg. Book.

on the Twin Se. "REGINA"

(Number of Visits 12)

Tons { Gross 9545
Net 3695

Built at

Copenhagen

By whom built

Chr. Burnaask. Wainis

Yard No. 625

When built 1937

Owners

Flaumen-Tangen

Port belonging to

Kristiansand

Electric Light Installation fitted by

The shipbuilders

Contract No.

When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk

yes

System of Distribution

Two conductor insulated system

Pressure of supply for Lighting

110

volts, Heating

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

herewith

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

herewith

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, from level

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

no woodwork etc.

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 forward end of the

engine room, from level

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

no woodwork etc.

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

yes

is the non-hygroscopic insulating material of an approved

type

Sindanyr

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 generator: A double pole circuit breaker, with overload & reversed current trips

Outgoing circuit: A double pole switch with fuses 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

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

set of earth lamps & voltmeter with ohm seals for each phase

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 "ZED"

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* 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 *5.5 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 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 *no* if so, are they adequately protected *-*

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit *lead covered*

Support and Protection of Cables, state how the cables are supported and protected *lead covered & wire armoured*

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 *-*

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 *-* 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 *-* are they ventilated 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 *no*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *no. (Lights in the pump room placed on the top of the room in steel case)* how are the cables led where are the controlling switches situated *on deck*

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 *-* are air heaters constructed and fitted as per Rule *-*

Searchlight Lamps, No. of *Annular for one* whether fixed or portable *Lamp not delivered* 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* 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 *no wood work etc* 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 *none*

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 fitted cartridge type *yes* are they of an approved type *yes (ZED)* 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 *-*

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	120	220	545	400	3 cyl 250 S.S. 700 H.P. engine	Brud oil	yes	
AUXILIARY ...	1	15	110	137	600	Steam engine	-	-	
EMERGENCY ...									
ROTARY TRANSFORMER	1	15	110	137	1500	electromotor			

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. mm.	No.	Diameter mm.	In Circuit.	Rule.			
MAIN GENERATOR ...	2	240	61	2.24	545	544	36	India Rubber	Lead covered &
EQUALISER CONNECTIONS ...	1	240	61	2.24	-	272	18	-	Wire armoured
AUXILIARY GENERATOR ...	1	95	19	2.53	137	152	58	-	-
EMERGENCY GENERATOR ...	-	-	-	-	-	-	-	-	-
ROTARY TRANSFORMER MOTOR ...	1	50	19	1.83	98	98	39	-	-
TRANSFORMER GENERATOR ...	1	95	19	2.53	137	152	39	-	-
ENGINE ROOM ...	1	10	7	1.35	20	38	10	-	-
BOILER ROOM ...	-	-	-	-	-	-	-	-	-
AUXILIARY SWITCHBOARDS ...	-	-	-	-	-	-	-	-	-
Navigation	1	4	7	0.85	45	22	198	-	-
Steering gear	1	50	19	1.83	88	98	8	-	-
Turning gear	1	25	7	2.13	64	65	58	-	-
Separate line	1	10	7	1.35	28	38	40	-	-
Ref. machinery	1	16	7	1.7	42	49	68	-	-
Accommodation	1	16	7	1.7	40	49	164	-	-
Deck lights	1	25	7	2.13	60	65	164	-	-
Brew up	1	6	7	1.05	15	29	62	-	-
Officers aft	1	6	7	1.05	25	29	65	-	-
Cooking & pump	1	10	7	1.35	26	38	70	-	-
Workshop motor	1	10	7	1.35	20	38	191	-	-
WIRELESS ...	1	10	7	1.35	20	38	191	-	-
SEARCHLIGHT	1	25	7	2.13	60	65	110	-	-
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.4	9	152	-	-
SIDE LIGHTS ...	1	1.5	1	1.38	0.4	9	30	-	-
COMPASS LIGHTS ...	1	1.5	1	1.38	0.4	9	10	-	-
POOP LIGHTS ...	1	1.5	1	1.38	0.2	9	240	-	-
CARGO LIGHTS ...	1	1.5	1	1.38	5.5	9	30	-	-
HEATERS ...	-	-	-	-	-	-	-	-	-

MOTOR CONDUCTORS.									
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with
		No. Per Pole.	Total Nominal Area per Pole Sq. mm.	No.	Diameter mm.	In Circuit.	Rule.		
BALLAST PUMP ...	1	1	16	7	1.7	44	49	40	India Rubber
MAIN BILGE LINE PUMPS ...	-	-	-	-	-	-	-	-	Wire armoured
GENERAL SERVICE PUMP ...	-	-	-	-	-	-	-	-	Lead covered
EMERGENCY BILGE PUMP ...	-	-	-	-	-	-	-	-	-
SANITARY PUMP ...	-	-	-	-	-	-	-	-	-
CIRC. SEA WATER PUMPS ...	2	1	70	19	2.16	120	124	160	-
ONE FRESH WATER PUMPS ...	1	1	4	7	0.85	12	22	28	-
AIR COMPRESSOR ...	-	-	-	-	-	-	-	-	-
FRESH WATER PUMP ...	-	-	-	-	-	-	-	-	-
ENGINE TURNING GEAR ...	2	1	10	7	1.35	32	38	128	-
ENGINE REVERSING GEAR ...	-	-	-	-	-	-	-	-	-
LUBRICATING OIL PUMPS ...	2	1	185	37	2.52	232	232	144	-
OIL FUEL TRANSFER PUMP ...	1	1	16	7	1.7	48	49	57	-
WINDLASS ...	-	-	-	-	-	-	-	-	-
WINCHES, FORWARD ...	-	-	-	-	-	-	-	-	-
WINCHES, AFT ...	-	-	-	-	-	-	-	-	-
STEERING GEAR—	-	-	-	-	-	-	-	-	-
(a) MOTOR GENERATOR ...	-	-	-	-	-	-	-	-	-
(b) MAIN MOTOR ...	-	-	-	-	-	-	-	-	-
WORKSHOP MOTOR ...	1	1	4	7	0.85	14	22	64	-
VENTILATING FANS ...	-	-	-	-	-	-	-	-	-
Separation	2	1	4	7	0.85	14	22	128	-
C.O. compressor	1	1	16	7	1.7	34	49	61	-
C.O. cooling pump	1	1	25	7	0.67	8	15	54	-

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

COMPASSES.

Minimum distance between electric generators or motors and standard compass 75 m

Minimum distance between electric generators or motors and steering compass 72 m

The nearest cables to the compasses are as follows:—

A cable carrying at 0.35 Ampères 2 m feet from standard compass 2 m 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 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.

ARTIESELSKABET
BURMEISTER & WAINSMASKIN- OG SKIBSBYGGERI

A. Honnert

Builder's Signature.

Date

Is this installation a duplicate of a previous case

If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, etc. The above electric installation)

has been constructed and fitted out under special survey in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letters E dated 13.2.1937

The material used in construction is of good description. On completion the whole installation was tested and examined under working conditions and found good.

Noted

L. J.

21/7/38

Total Capacity of Generators 255 Kilowatts.

The amount of Fee ...

£ 1013.40

When applied for.

13.7.1937

Travelling Expenses (if any)

£ 20.00

When received.

22.9.1937

24/9

J. Langhorne Jones
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 27 JUL 1937

Assigned

See F.E. memo xpt.