

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 6/4 1954 • When handed in at Local Office 8/4 1954 • Port of M A I M Ö.

No. in Survey held at M A I M Ö. Date, First Survey 27/1 Last Survey 31/3 1954 •
Reg. Book. (No. of Visits 23)

36109s on the Motortanker "H A V I A P L" Tons } Gross 11,079
Net 6,408

Built at Malmö. By whom built Kockums Mek. Verkst. / Yard No. 366 When built 1954.

Owners A/S Havprins Port belonging to Oslo

Installation fitted by Kockums Mek. Verkstads A.-B. When fitted 1954.

Is vessel equipped for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. -- Radar Yes

Plans, have they been submitted and approved Yes. System of Distribution 3 phase insulated Voltage of Lighting 115

Heating 380 Power 380 D.C. or A.C., Lighting A.C. Power A.C. If A.C. state frequency 50

Prime Movers, has the governing been found as per Rule when full load is thrown on and off Yes. Are turbine emergency governors fitted with a trip switch --- Generators, are they compound wound ---, and level compounded under working conditions ---, if not compound wound state distance between generators --- and from switchboard --- Are the generators arranged to run in parallel Yes. are shunt field regulators provided --- Is the compound winding connected to the negative or positive pole --- Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes. Have certificates of test for machines under 100 kw. been supplied Yes. and the results found as per Rule Yes.

Position of Generators Port and starboard side forward BR. floor and on a platform port side BR. is the ventilation in way of generators satisfactory Yes. are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil Yes. Switchboards, where are main switchboards placed On a platform port side in engine room.

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil Yes., what insulation is used for the panels Dead front switchboard, if of synthetic insulating material is it an Approved Type ---, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule --- Is the construction as per Rule, including locking of screws and nuts Yes. Description of Main Switchgear for each generator and arrangement of equaliser switches 3 pole circuit breaker with isolating switch o/c and u/v and r/c

and the switch and fuse gear (or circuit breakers) for each outgoing circuit 3 pole knife switches and 3 pole fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes. Instruments on main switchboard 18 ammeters 5 voltmeters --- synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection --- Earth Testing, state means provided Ohm-meter.

Switches, Circuit Breakers and Fuses, are they as per Rule Yes., are the fuses an Approved Type Yes. make of fuses ASEA, are all fuses labelled Yes. If circuit breakers are provided for the generators, at what overload do they operate at 10%; set at 50%, and at what current do the reversed current protective devices operate 15%

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes.

Cables, are they insulated and protected as per Rule Yes., if otherwise than as per Rule are they of an Approved Type --- state maximum fall of pressure between bus bars and any point under maximum load < 5%, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets --- Are all paper insulated and varnished cambric insulated cables sealed at the ends --- Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage Yes., are any cables laid under machines or floorplates Yes., if so, are they adequately protected Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes. or run in conduit --- or of the "HR" type --- State how the cables are supported or protected L.C. and S.T.A. cables clipped to surface plate or tray in machinery space and on decks and covered with steel channel plates under floor plates in engine room. Lead covered cables clipped to surface or to wood grounds in accommodations.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes., where unarmoured cables pass through beams, etc., are the holes effectively bushed Yes. Refrigerated chambers, are the cables and fittings as per Rule Yes.

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position

Navigation Lamps, are they separately wired Yes. controlled by separate double pole switches and fuses Yes. Are the switches and fuses in a position accessible only to the officers on watch Yes., is an automatic indicator fitted Yes. Is an alternative supply provided Yes.

Secondary Batteries, are they constructed and fitted as per Rule ---, are they adequately ventilated --- state battery capacity in ampere hours ---

Fittings, are all fittings on weather decks, in subholdrooms engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes. Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present Yes.

if so, how are they protected S.T.A. cables and lamps contained in flame proof fittings and where are the controlling switches fitted Wholly outside these spaces Are all fittings suitably ventilated Yes.

Searchlight Lamps, No. of ---, whether fixed or portable ---, are they of the carbon-arc or of the filament type ---

Heating and Cooking, is the general construction as per Rule Yes., are the frames effectually earthed Yes., are heaters in the accommodation of the convection type --- Motors, are all motors constructed and installed as per Rule and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil Yes.

Are motors coupled to oil fuel transfer and pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment Yes. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing ---

Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule Yes.

Control Gear and Resistances, are they constructed and fitted as per Rule Yes. Lightning Conductors, where required are they fitted as per Rule --- Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with Yes., are all fuses of an Approved Cartridge Type Yes., make of fuse ASEA Are the fittings for pump

rooms, taxiways etc., in accordance with the special requirements for such ships Yes. Are the cables lead covered as per Rule Yes. In cofferdam at forward end of BR. double bottom.

E.S.D., if fitted state maker Kelvin & Hughes location of transmitter --- and receiver ditto.

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations Yes.

Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory Yes.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT				Revs. per Min.	TYPE.	PRIME MOVER.
			KVA	Volts.	Ampères.	Revs. per Min.			
MAIN ...	2	ASEA	275	400	397	375	Heavy oil engine.	K.M.V.	
	1	ASEA	190	400	274	500	Steam eng.	Reader.	
EMERGENCY ...									
ROTARY TRANSFORMER									

GENERATOR CABLES.

DESCRIPTION.	KVA	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area of Strands, sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	275	4	95	397	420	32	Rubber	Lead covered & armoured
" " EQUALISER ...	190	3	95	274	315	8	Rubber	" " "
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR...								

MAIN DISTRIBUTION CABLES (to Section Boards, Distribution Fuse Boards, etc.).

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area of Strands, sq. mm.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
K1 Amidship	1	70	80	87	110	Rubber Lead covered and armoured.
K2 Fans water heater ER. top	1	35	40	55	25	" " "
K3 Laundry	1	50	42	69	45	" " "
K4 Workshop	1	25	25	44	50	" " "
K5 Fans, purifiers, pumps ER.(s.s.)	1	25	35	44	30	" " "
K6 Fans, pumps ER. P.S. aft	1	35	42	55	20	" " "
K7 Pumps, purifiers ER. P.S. forw.	1	50	55	69	15	" " "

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area of Strands, sq. mm.	In the Circuit.	Rule.			
B1 Amidship boatdeck	2	50	120	138	14	Rubber	Lead covered and armoured.
B2 " bridge deck	1	50	60	69	11	"	" "
B3 Forecastle	1	4	10	16	60	"	" "
B4 Accommodation aft starboard	1	35	40	55	30	"	" "
B5 " " port	1	50	60	69	15	"	" "
B6 Engine room	1	35	40	55	10	"	" "
B7 " " space	1	10	15	27	14	"	" "
Navigation light	1	6	6	27	125	"	" "
Wireless	1	16	25	33	125	"	" "
Radar	1	4	15	16	5	"	" "
Gyro	1	2.5	10	13	10	"	" "
E.S.D.	1	2.5	15	13	8	"	" "
Suez light	1	25	40	44	80	"	" "
Transformers:							
No.1 lighting & Galley 380/115							
Primary	1	35	45.6	55	10	"	" "
Secondary	2	70	151	174	5	"	" "
No.2 lighting & Galley 380/115							
Primary	1	35	45.6	55	12	"	" "
Secondary	2	70	151	174	7	"	" "
No.3 lighting & Galley 380/115							
Primary	1	35	45.6	55	12	"	" "
Secondary	2	70	151	174	7	"	" "
Shore 250-500/400							
Primary	1	70	62.4	87	30	"	" "
Secondary	2	70	128.4	174	5	"	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Steering engine	2	27	1 35	39	55	80	Rubber Lead covered and armoured.
Main lubr. oil pumps	2	20	1 16	29	33	35	" " "
" S.W. pumps	2	40	1 50	55	69	40	" " "
" F.W. "	1	30	1 25	40	44	50	" " "
Fire and sanitary pump	1	18	1 10	24	27	8	" " "
Bilge pump	1	8	1 4	13	16	3	" " "
Oil fuel transfer pump	1	6	1 2.5	9	13	2	" " "
Cool.pumps to ME. pistons	2	18	1 10	24	27	40	" " "
Aux.eng. circulating pump	1	13.5	1 6	18	21	8	" " "
Turning gear	1	17	1 16	28	33	30	" " "
Engine room fans	2	7	1 2.5	10	13	10	" " "
Purifiers (3)	5	4	1 1.5	6.4	7	15	" " "
Prov. refr. compressors	2	3.5	1 1.5	5.8	7	6	" " "
" " circul.pumps	2	0.5	1 1.5	1.9	7	8	" " "
Circulating pumps for purif.	1	1.5	1 1.5	2.6	7	14	" " "
Cooling pumps for ME o.p.							
inj. valves.	2	18	1 10	24	27	5	" " "

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

KOCKUMS
MEKANISKA VERKSTÄDE AKTIEBOLAG
ELEKTRISKA AVDELNINGEN

Electrical Contractors.

Date **7 APR. 1954**

Sigfrid Franzén / *Göthard Vagnell*

COMPASSES.

Have the compasses been adjusted under working conditions... Yes.

KOCKUMS
MEKANISKA VERKSTÄDE AKTIEBOLAG

P. Stenborg

Builder's Signature.

Date **7 April 1954**

Have the foregoing descriptions and schedules been verified and found correct... Yes.

Is this installation a duplicate of a previous case... No. If so, state name of vessel. ---

Plans. Are approved plans forwarded herewith... No. If not, state date of approval. Gothenburg 11.3.54.

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith... Yes.

General Remarks. (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

The electric installation has been fitted in the vessel under my inspection and has been tested and found satisfactory.

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

Lloyd's and Makers' Certificates in respect of generators and motors are attached.

Regarding 380 V. heating elements please see Gothenburg letters 11th and 19th March, 1954.

Note:-

Part of the survey was carried out by the undersigned on Wednesday the 31st March, between 19³⁰ and 21³⁰.

*noted 95.
6/5/54*

Total Capacity of Generators... 740 KVA
Kilowatts

The amount of Fee ...MMO...	£r. 1.840:-	When applied for,
" " " " SKM	Kr. 460:-	8/4 1954.
Special Att. Fee	Kr. 70:-	When received,
Travelling Expenses (if any) Skm	£r. : 108:-	19
" " Mmo	Kr. 5:50	
" " Got	Kr. 136:-	

Stenborg
Surveyor to Lloyd's Register of Shipping.

Committee's Minute... TUESDAY 11 MAY 1954

Assigned... *See Rpt. 40*

*
23.4.54

2m.9.40.—Transfer. (MADE AND PRINTED IN ENGLAND.)
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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