

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

11 FEB 1951

Date of writing Report 6/2 19.52. When handed in at Local Office 8/2 19.52. Port of M.A.L.M.Ö

No. in Survey held at M.A.L.M.Ö Date, First Survey 30/11 Last Survey 28/1 19.52.
Reg. Book. (No. of Visits 14)

HL. 8. 35993s on the M/T "H.A.V.F.R.U" Tons { Gross 10.491 Net 6.165

Built at M.A.L.M.Ö By whom built Kockums Mek. Verkst. A/B. Yard No. 319 When built 1952

Owners A/S Havtor Port belonging to O.S.I.O

Installation fitted by Kockums Mek. Verkstads A.-B. When fitted 1952

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 Two wire Voltage of Lighting 110

Heating 220 Power 220 D.C. or A.C., Lighting D.C. Power D.C. If A.C. state frequency -

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 Yes, and level compounded under working conditions Yes,

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 Yes. Is the compound winding connected to the negative or positive pole

Negative 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 One on port and one on stbd. side in engine room.

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 platform deck, 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 C.B. with o/c in two poles U/V trips and

o/c perf. relay. Third pile used for equaliser.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit. D.P. knife and rotary switch and

D.P. fuse.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule. Yes Instruments on main switchboard 8

ammeters 6 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. Yes Earth Testing, state means provided

Ohm meters

Switches, Circuit Breakers and Fuses, are they as per Rule. Yes, are the fuses an Approved Type. Yes

make of fuses Asea & I.K., are all fuses labelled. Yes If circuit breakers are provided for the generators, at what

overload do they operate. Operated at 10% set at 50%, and at what current do the reversed current protective devices operate. 15% R/C

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. < 6%, are the ends of all cables having a sectional

area of 0.01 square inch and above provided with soldering sockets. Yes 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. & S.T.A. cables clipped to

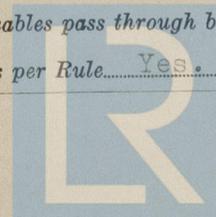
surface plate or tray in machinery spaces and on decks and covered with steel channel

plates in E.R. L.C. cables clipped to surface and 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 Retrigrated chambers, are the cables and fittings as per Rule. Yes.



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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 stokeholds and 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... Cables led in gastight tubing and lamps contained in flameproof 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... Yes... 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... None...

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 & L.K. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships... Are the cables lead covered as per Rule...

on a cofferdam at fwd E.S.D., if fitted state maker... Hughes... location of transmitter and of E.R. double and receiver... Ditto bottom port side.

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				PRIME MOVER.	
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN ...	2	Asea	150	230	652	350	Heavy oil eng.	Kockums M.V.A/B
Harbour 230V	1	G.E.C.	40	230	174	525	Steam eng.	W.Sisson & Co. Ltd.
" 115V	1	G.E.C.	40	115	348	525	" "	"
EMERGENCY ROTARY TRANSFORMER	1	Thrige	30	110	273	1400	El. motor	Thomas B. Thrige

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return, feet).	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR		3	185	652	3x232	Max. 61	Rubber	L.C. & S.T.A.
" " EQUALISER		6	185	-	6x232	" 61	"	"
Harbour " 230V	40	1	120	174	174	15	"	"
" " 115V	40	2	120	348	2x174	17	"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOE	46 HP	1	150	170	203	24	"	"
" " GENERATOR	30	1	240	273	273	18	"	"

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

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return, feet).	INSULATION.	PROTECTIVE COVERING.
S.B. C1 Vent. fans, pumps, sep.	1	70	90	125	21	Rubber	L.C. & S.T.A.
S.B. C2 Small pumps & dom. compr.	1	70	90	125	18	"	"
S.B. C3 Galley	1	70	97	125	68	"	"
S.B. C4 Gyro-room	1	70	125	125	180	"	"
S.B. C5 Shop	1	25	60	63	26	"	"
S.B. C6 Laundry	1	25	53	63	57	"	"
S.B. C7 Traverse crane & Water heat.	1	50	97	98	50	"	"
S.B. B1 Gyro-room (lighting)	1	185	155	232	178	"	"
D.B. B1a Bridge deck amidships	1	35	68	79	19	"	"
D.B. B1b Boat deck amidships	1	25	60	63	35	"	"
D.B. B1c Forecastle	1	6	14	28	33	"	"
D.B. B2 Accom. aft. Port side	1	35	75	79	58	"	"

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 or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
D.B. B3 Accom. aft. Stbd. side	1	35	75	79	78	Rubber	L.C. & S.T.A.
D.B. B4 Engine room	1	16	45	48	19	"	"
D.B. B5a " " (220V)	1	10	6	38	7	"	T.B. & C.
D.B. B5b " " (220V)	1	10	12	38	5	"	"
Navigation lights	1	6	1	28	20 & 226	"	L.C. & S.T.A.
Wireless	1	10	16	38	220	"	"
Radar	1	2,5	3	15	10	"	"
Gyro	1	4	12	22	7	"	"
Water heater	1	16	41	48	4	"	"
" " "	1	4	16	22	13	"	"
Cooking range	1	25	43	54	19	"	"
Baking oven	1	10	27,3	38	18	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
Cool. pumps salt W.	2	35	1	120	134	174	Max. 68	Rubber	L.C. & S.T.A.
Cool. pumps fresh W.	1	27	1	70	102	125	68	"	"
Lubr. oil pumps	2	46	1	150	173	203	Max. 80	"	"
Cool. w. pump (aux. oil eng)	1	5	1	10	19,5	38	61	"	"
Bilge pump	1	8	1	10	32	38	42	"	"
Fire pump	1	21	1	50	79	98	22	"	"
Turning gear	1	14	1	25	54	63	62	"	"
Steering gear	2	24,5	1	50	93	98	Max. 104	"	"
Eng. vent fans	2	4,6	1	4	17,9	22	" 104	"	"
Fuel oil sep. } Off	2	3,75	1	4	14,9	22	" 22	"	"
" " transf. pump C1	1	5	1	6	20	28	20	"	"
" " sep. pump	2	0,9	1	1,5	3,9	8	Max. 17	"	"
Domestic compr.	1	5	1	6	19	28	22	"	"
Cool pump for refr	1	1	1	1,5	4,5	8	18	"	"
Lubr. oil sep. } Off C2	2	3,2	1	4	12,9	22	Max. 44	"	"
Circ. pump exhaust gas econ	1	0,8	1	1,5	3,6	8	16	"	"
Cool pumps nozzles	2	1	1	1,5	4,3	8	54	"	"
Hydrophor pumps	2	2	1	1,5	8,2	8	Max. 30	"	"
Lathe	1	3	1	6	12,2	28	16	"	"
Shaping machine	1	2,7	1	2,5	11,3	15	20	"	"
Drilling " } Off C5	1	2	1	2,5	8,8	15	18	"	"
Grinding " } Off C5	1	1,5	1	2,5	6,4	15	18	"	"
Traverse crane } Off C7	1	6,5	1	10	27	38	14	"	"

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 VERKSTÄDS AKTIEBOLAG
ELECTRICAL CONTRACTORS

Yngve Franzen

Electrical Contractors.

Date 7.2 1952

COMPASSES.

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

KOCKUMS
MEKANISKA VERKSTÄDS AKTIEBOLAG

Knut Thielund

Builder's Signature.

Date

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

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 above described electrical equipment installation has been fitted onboard in accordance with the Rules, approved plans and instructions and has been tested with satisfactory results.

The workmanship and material are good.

This electric equipment installation is, in my opinion, suitable for a classed vessel.

Noted 28.2.52

Total Capacity of Generators 340 Kilowatts.

The amount of Fee ...	Mmo. Kr.	1.344:-	When applied for,
	Skm. Kr.	336:-	
	Skm.		When received,
Travelling Expenses (if any)	Kr.	35:50	19

A. Barring
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 29 FEB 1952

Assigned

Su F.E. mchy. not

2m.9.46.—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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