

Rpt. 13

No. 8048 El.

# REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 18.5. 19 61 When handed in at Local Office 19 Port of Helsingfors

No. in Survey held at Helsingfors Date, First Survey 3.12.60 Last Survey 28.4. 19 61  
Reg. Book (No. of Visits 15)

93394 on the M/S "PARANAGUA" Tons Gross 4000 Net

Built at Helsinki By whom built Messrs Valmet Oy Yard No. 203 When built 1960-61  
Owners Comissao de Marinha Mercante Helsingin Telakka Port belonging to Rio de Janeiro

Installation fitted by Messrs. Valmet Oy When fitted 1961

Is vessel equipped for carrying Petroleum in bulk No 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 Three wire A.C. Voltage of Lighting 115

Heating 440 Power 440 D.C. or A.C. Lighting A.C. Power A.C. If A.C. state frequency 60 cycles

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 with exception of

Are the generators arranged to run in parallel 87.5 kVA Is the compound winding connected to the negative or positive pole

Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines under 100 kw. been supplied and the results found as per Rule Yes Position of Generators 210 kVA sets: On flat aft end of engine room. 87.5 kVA set in compartment fore end of engine room Poop Deck level

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 flat aft port side of engine room. Harbour generator board in compartment adjacent to 87.5 kVA set.

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 construction, 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 Triple pole circuit breaker fitted with overload, reverse power and preference trips.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit Triple pole switch and fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 13 ammeters five voltmeters two synchronising devices. For compound machines in parallel are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection. Earth Testing, state means provided Ohm-meter with selector switch Preference Tripping, state if provided Yes, and tested Yes

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

make of fuses Asea or Stotz, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate miniature circuit breaker, 30% full load current, and at what current do the reverse current protective devices operate 6%, 8 seconds 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% less than normal volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends Yes

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 State type of cables (if in conduit this should also be stated) in machinery spaces LC&A cable, galleys LC&A cables and laundries LC&A cables State how the cables are supported or protected Mains - LCA cables clipped to steel plate with cover plate fitted. Machinery space - LCA cable clipped to perforated tray. Accommodation - LC cable clipped to wood work.

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

Have refrigeration fan motors been constructed under survey and test certificates supplied

Are the motors accessible for maintenance at all times

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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, fitted and adequately ventilated as per Rule Yes, state battery capacity in ampere hours Yes Where required to do so does it comply with 1948 International Convention Yes

Lighting, is fluorescent lighting fitted Yes If so, state nominal lamp voltage Yes and compartments where lamps are fitted Yes

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes

Searchlights, No. of 4 ~~3~~ 1 Suez Yes fixed or portable Yes, are they of the carbon arc or of the filament type Filament

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 Yes

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

Lightning Conductors, where required are they fitted as per Rule Yes

Ships carrying Oil having a Flash Point of 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 Yes Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships Yes Are all cables lead covered as per Rule Yes

E.S.D., if fitted state maker Kelvin Hughes location of transmitter and receiver Frame spaces 119-120 and 121-122

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	
			kVA per Generator	Volts	Ampères	Revs. per Min.	TYPE	MAKER
MAIN ...	3	Asea	210	450	270	600	Diesel	Valmet Oy, Linnavuori
Harbour	1	Brush	87.5	450	112.2	1200	Diesel	McLaren
EMERGENCY ...								
ROTARY TRANSFORMER								

#### GENERATOR CABLES

DESCRIPTION	No. of	Kw.	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	210	2	3 x 95	270	360	15	VC	LCAB
" " EQUALISER ...									
Harbour generator	1	87.5	1	3 x 70	112.2	148	8	VC	LCAB
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

#### MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION	No. of	Kw.	CONDUCTORS	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet)	INSULATION	PROTECTIVE COVERING
Main d.b. - Harbour d.b.	2		3 x 70	200	296	30	VC
Shore connection b. - Harbour d.b.	2		3 x 50	200	236	30	
Cargo winch panel I	1		3 x 70	116	148	110	
" " " II	1		3 x 70	116	148	90	
" " " III	1		3 x 70	116	148	70	
" " " IV	1		3 x 50	106	118	50	
Dom.refrig. + galley board	1		3 x 6	22	29	35	
Vent. fan board	1		3 x 50	75	118	15	
Engine room power board I	1		3 x 95	136	180	20	
45 kVA Transformers, Primary	1		3 x 35	59	93	10	
" " " Secondary	2		3 x 95	225	360	10	
Midship lighting board	2		3 x 50	80	236	90	
Aft lighting board poop deck L.S.	1		3 x 25	60	75	15	
" " " shelter deck	1		3 x 16	40	58	30	
Forward hold lighting B. fan room	2		3 x 50	70	236	85	
Aft hold lighting board	1		3 x 35	70	93	40	
Engine room lighting B. upper plans	1		3 x 6	20	29	10	VC

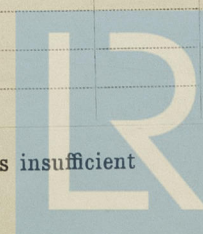
#### DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.)

DESCRIPTION	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return feet)	INSULATION	PROTECTIVE COVERING
			In the Circuit	Rule			
Radar and Gyro compass board	1	3 x 6	8	29	110	V.C.	LCAB
Midship power board	1	3 x 16	38	58	110		
Laundry distribution board	1	3 x 6	10	29	60		
Lifeboat winch D.B.	1	3 x 10	28	44	20		
Engine room power D.B. II	1	3 x 25	58	75	25		
" " " " III	1	3 x 35	70	93	25		
" " " " IV	1	3 x 25	60	75	12		
Workshop distribution board	1	3 x 16	32	58	35		
Emergency Gen. room power D.B.	1	3 x 6	10	29	10	V.C.	
Navigation lighting D.B.	1	2 x 4	3	22.5	120	Rubber	
Radio	1	3 x 35	20	93	120	V.C.	
Bridge deck lighting D.B.	1	3 x 6	25	29	10		
Engine room lighting D.B. platform	1	3 x 25	50	75	20		
Galley power distribution board	1	3 x 10	40	44	25		
Shore supply	2	3 x 50	210	236	30	V.C.	LCAB

#### MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	B.H.P.							
Windlass	1	73/58	1	3 x 35	89	93	130	V.C.	LCAB
Cargo winch (Conv.Motor)	15	55	1	3 x 25	70	75	10		
Capstan	1	20	1	3 x 6	27	29	40		
Steering gear	2	10	1	3 x 10	15	44	35		
Lifeboat winches	2	9	1	3 x 6	13	29	12		
Cargo oil pump	1	150	2	3 x 50	181	236	110		
Air compressors	2	36	1	3 x 16	48.5	58	25		
Lub.oil pumps	2	36	1	3 x 16	47	58	25		
Turbo charger	1	35	1	3 x 16	44	58	5		
Fire pump	1	33	1	3 x 16	41	58	20		
Bilge pump	1	26	1	3 x 10	35	44	25		
Ballast pump	1	25	1	3 x 10	32.5	44	30		
E.R. vent. fan	1	30	1	3 x 10	39	44	20		
E.R. vent. fans	2	10	1	3 x 6	13.5	29	15		
Cooling water pumps	3	17	1	3 x 6	20.5	29	40		
Fresh water pump	1	14	1	3 x 6	17	29	15		
Oil transfer pump	1	14	1	3 x 6	17.3	29	20		
Oil transfer pump	1	11	1	3 x 6	14.5	29	16	V.C.	
Acc. Vent. fans	1	12.6	1	3 x 4	15	16	6	Rubber	
" " "	1	4.6	1	3 x 25	7	13	6	"	
Turning gear	1	9	1	3 x 6	15.4	29	25	V.C.	
Aux.eng.cooling pumps	2	7	1	3 x 4	9	16	5	Rubber	
F.O. & L.O. purifiers	3	4	1	3 x 2.5	5.5	13	8		
Dom. refrig. comps.	2	3	1	3 x 2.5	5.2	13	4		
Hydrophore pumps	3	2.5	1	3 x 2.5	3.5	13	6		
Turbocharger L.O.pumps	2	1.6	1	3 x 2.5	2.5	13	3		
Fuel oil pump	1	1.5	1	3 x 2.5	1.4	13	15		
Oil burner motor	1	1.7	1	2 x 2.5	2.5	13	12		
Harbour gen.cool. pump	1	1.0	1	3 x 2.5	1.6	13	20	Rubber	LCAB

NOTE.—Use Rpt. 43 Continuation Sheet if the above space is insufficient



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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.

VALMET Oy Electrical Contractors. Date  
*pp Arne Lindberg J. Nyman*

COMPASSES

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

VALMET Oy Builder's Signature. Date  
*pp Arne Lindberg J. Nyman*

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

Is this installation a duplicate of a previous case... Yes If so, state name of vessel... M/S. "TURIAGÚ"

Plans. Are approved plans forwarded herewith... If not, state date of approval... 9.4.59, 25.6.59, 4.1.60, 3.2.60, 5.3.60.

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

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.) The electric equipment of this ship has been fitted on board under Special Survey, tried under full working conditions and found fit for class. Material and workmanship found good.

Total Capacity of Generators 717.5 Kilowatts. voltamperes

The amount of Fee ... £	:	:	When applied for,
			19
Travelling Expenses (if any) £	:	:	When received,
			19

*J.M. Sardin* *S. Wilson*  
Surveyor to Lloyd's Register of Shipping

Committee's Minute... THURSDAY 13 JUL 1961

Assigned...