

Rpt. 13.

No. 16068

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report

18

When handed in at Local Office

Received at London Office

AUG 15 1937

No. in Survey held at

Haverston Hill-on-Sus

Date, First Survey

Port of *Middleborough*

Last Survey

16<sup>th</sup> July 1937Reg. Book. *Suppl*39156 on the *S.S. "MISOA"*(Number of Visits *Six*)Tons { Gross  
NetBuilt at *Haverston Hill-on-Sus*By whom built *Furniss S.B. Co. Ltd.*Yard No. *267*When built *1937*Owners *Lago Shipping Co. Ltd.*Port belonging to *London*Electric Light Installation fitted by *Furniss S.B. Co. Ltd.*Contract No. *267*When fitted *1937*Is the Vessel fitted for carrying Petroleum in bulk *Yes*System of Distribution *Double wire*Pressure of supply for Lighting *110* ✓

volts.

Heating *110 (Cooking)*volts. Power *110*

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 *No*

, is an adjustable regulating resistance fitted in

series with each shunt field *Yes*approved *Yes (2 cert. enc. Herewith)*

Have certificates of test results for machines under 100 kw. been submitted and

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 *Engine room aft on centreline*

, 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 *Engine room aft on centreline*

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 *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 micaite or other

non-hygroscopic insulating material, and the slab similarly insulated from its framework —

, is the non-hygroscopic insulating material of an approved

type —

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

*D.P.C.O. sws. & D.P. fuses on dynamo mains; D.P.C.O. sws. & D.P. fuses on outgoing circuits*

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 —

Instruments on main switchboard

2

ammeters

2

voltage meters —

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

*E lamps coupled to E through switches & fuses*

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

Have the reversed

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current protection devices been tested under working conditions

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 or XI 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 3.5 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 *Yes*

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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Yes*

Support and Protection of Cables, state how the cables are supported and protected *main cables L.C.A.B. run in pipe with*

*expansion joints along deck; cables in machy. spaces L.C.A.B. clipped up; L.C.B. cables*

*clipped up in access.* 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 *Yes: L.C. CABLES WITH HARDWOOD CLEATS.*

Joints in Cables, state if any, and how made, insulated, and protected *none made*

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 *COPPER STRIP 50% OF SECTIONAL*

AREA OF MAIN CABLES.

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 they arranged as per Rule *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 —

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 —

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Fittings mounted*

*on pumproom casings & separated from pumprooms by gastight bowls, how are the cables led*

*Cables led external to pumprooms; no cables in pumprooms.* where are the controlling switches situated *On outside of pumproom companions & pumproom deckhouse*

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 —

Searchlight Lamps, No. of /, whether fixed or portable *fixed* are their fittings as per Rule *Yes*

Are Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, 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 —

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 — 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 *Spikes fitted* 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

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office *none supplied*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *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	10	110	91	350	Single cylinder steam engines		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

## 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. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	.04	19	.052	91	94	40	V.C.	L.C.A.B.
SHORE CONNECTION	1	.04	19	.052	91	94	120	V.C.	L.C.A.B.
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM									
BOILER ROOM	1	.01	7	.044	30	31	30	V.I.R.	L.C.A.B.
AUXILIARY SWITCHBOARDS									
Navigation	1	.0225	7	.064	17	46	700	V.I.R.	L.C.A.B.
Crew Accom. aft	1	.01	7	.044	27	31	120	V.I.R.	L.C.A.B.
Eng'rs' Accom. aft	1	.01	7	.044	21	31	120	V.I.R.	L.C.A.B.
ACCOMMODATION									
Machine Shop & S.B. fed	1	.1	19	.083	44	118	600	V.I.R.	L.C.A.B.
Supp'g. Off'rs' Accom.	1	.01	7	.044	26	31	10	V.I.R.	L.C.A.B.
Food. Kitch.	1	.01	7	.044	8	31	4	V.I.R.	L.C.A.B.
Stiddle	1	.0045	7	.029	10	18.2	40	V.I.R.	L.C.A.B.
WIRELESS	1	.01	7	.044	15	31	670	V.I.R.	L.C.A.B.
SEARCHLIGHT (500 watt)	1	.002	3	.029	4.6	7.8	30	V.I.R.	L.C.A.B.
MASTHEAD LIGHT	1	.002	3	.029	4	7.8	340	V.I.R.	L.C.A.B.
SIDE LIGHTS	1	.002	3	.029	4	7.8	100	V.I.R.	L.C.A.B. in pipe
COMPASS LIGHTS	1	.002	3	.029	4	7.8	40	V.I.R.	L.C.A.B.
STEAM LIGHTS	1	.002	3	.029	4	7.8	720	V.I.R.	L.C.A.B.
CARGO LIGHTS (Clusters)	1	.005	44	.012	5.5	13	7	V.I.R.	Cat type
ARC LAMPS (6 x 100 watt)									
HEATERS									

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ... ..										
MAIN BILGE LINE PUMPS ... ..										
GENERAL SERVICE PUMP ... ..										
EMERGENCY BILGE PUMP ... ..										
SANITARY PUMP ... ..										
CIRC. SEA WATER PUMPS ... ..										
CIRC. FRESH WATER PUMPS... ..										
AIR COMPRESSOR ... ..										
FRESH WATER PUMP ... ..										
ENGINE TURNING GEAR... ..										
ENGINE REVERSING GEAR ... ..										
LUBRICATING OIL PUMPS ... ..										
OIL FUEL TRANSFER PUMP ... ..										
WINDLASS ... ..										
WINCHES, FORWARD ... ..										
Refrig. Machy. fed		1	.01	7	.044	33	38	140	V.C.	L.C.A. MB.
<del>Supp'g. Refrig. Pump.</del>	1	1	.01	7	.044	28	38	40	V.C.	L.C.A. MB.
Drinking Water Pump	1	1	.002	3	.029	5	7.8	60	V.I.R.	L.C.A. MB.
STEERING GEAR--										
(a) MOTOR GENERATOR...										
(b) MAIN MOTOR ... ..										
WORKSHOP MOTOR ... ..										
VENTILATING FANS ... ..										
Eng. Rm. Machy. fed		1	.01	7	.044	37	38	30	V.C.	L.C.A. MB.
Supp'g. Sanitary Pump	1	1	.0045	7	.029	16	18.2	170	V.I.R.	L.C.A. MB.
Drill	1	1	.003	3	.036	8	12	190	V.I.R.	L.C.A. MB.
Grinder	1	1	.003	3	.036	8	12	190	V.I.R.	L.C.A. MB.
S.W. Pump	1	1	.002	3	.029	5	7.8	170	V.I.R.	L.C.A. MB.



All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

P. S. Glover

Electrical Engineers.

Date 29<sup>th</sup> July 1937.

#### COMPASSES.

Distance between electric generators or motors and standard compass 240 feet

Distance between electric generators or motors and steering compass 230 feet

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères on the ~~foot~~ from standard compass 10 feet from steering compass.

A cable carrying .14 Ampères 10 feet from standard compass on the ~~foot~~ 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 nil degrees on every course in the case of the standard

compass, and nil degrees on every course in the case of the steering compass.

J. M. Glover  
Director,  
FURNES SHIPBUILDING CO. LIMITED,

Builder's Signature. Date 29/7/37

Is this installation a duplicate of a previous case yes If so, state name of vessel S.S. "Bachaguro"

General Remarks (State quality of workmanship, opinions as to class, &c. The above inst<sup>n</sup> has been fitted

out under special survey. The insulation resistance is good. The dynamo, governors, main board, fuses, cables & fittings etc. tested under working conditions & found satisfactory.

Noted

Wm

6. P. 37

Total Capacity of Generators 20 Kilowatts.

The amount of Fee ... £ 17 : 10 : 15-7-37

Travelling Expenses (if any) £

When received, 30-8-37

Santison W. T. Badger  
Surveyor to Lloyd's Register of Shipping.

FRI 6 AUG 1937

Committee's Minute

Assigned

See Ind 16055



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