

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office APR - 6 1938

Date of writing Report 28th 3rd 1938 When handed in at Local Office 2. 4. 1938 Port of Glasgow
 No. in Survey held at Glasgow. Date, First Survey 24: 12: 37 Last Survey 29th 3rd 1938
 Reg. Book. 39198 on the S.S. "MACHARDA" (Number of Visits 10) Tons { Gross 7998
 Net 4762
 Built at Port Glasgow By whom built Wm Hamilton & Co Ltd Yard No. 430 When built 1938
 Owners T. & J. Brocklebank Ltd. Port belonging to Liverpool
 Electric Light Installation fitted by Sunderland Forge & Eng. Co. Contract No. 430 When fitted 1938
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two wire
Pressure of supply for Lighting 110 volts, **Heating** 110 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 Have certificates of test results for machines under 100 kw. been submitted and approved Yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing —
 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 Engine Room on bottom platform., 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 near generators
 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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework SINDANYO., is the non-hygroscopic insulating material of an approved type Yes, and is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live parts Yes
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. switch & fuses for each generator. "D.P.C.O. switches & fuses for each outgoing circuit."
 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
 voltmeters — 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 Earth lamps
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 have the reversed —

current protection devices been tested under working conditions 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 + 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 5.0 Volt **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load Yes

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 Yes 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, lavatories, bathrooms and lavatories lead covered or run in conduit Yes

Support and Protection of Cables, state how the cables are supported and protected Main: L.C.B. in galv. conduits, Accommodation L.C.B. Machinery spaces. L.C.B. on L.C.B. Clippard.

If cables are run in wood casings, are the casings and caps secured by screws Yes, are the cap screws of brass Yes, are the cables run in separate grooves Yes 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

Joints in Cables, state if any, and how made, insulated, and protected None.

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 Metallic sheathing & armoring of cables frequently bonded electrically.

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 Yes

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 Yes

Fittings, are all fittings on weather decks, in stowholds 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 Yes

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

how are the cables led Yes

where are the controlling switches situated Yes

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 Yes

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

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, where possible 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 Yes

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 Yes **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

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office Yes

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	15	110	136	650	Steam Engines		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	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.	Rate.			
MAIN GENERATOR S.	1	.075	19	.072	136	157	100	Varnished Cambric	L.C.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM									
BOILER ROOM	1	.0145	7	.052	30	37	24	Rubber	L.C.A.B.
AUXILIARY SWITCHBOARDS									
UPPER BRIDGE Lga. D.B.	1	.003	1	.064	5.7	12.9	212	"	L.C.B.
LOWER BRIDGE " " D.B.	1	.003	1	.064	11.4	12.9	144	"	"
FORWARD D.B.	1	.01	7	.044	24.3	31	36	"	"
ACCOMMODATION									
SALOON S.B.	1	.04	19	.052	46.3	64	380	"	"
BRIDGE DECK AFT	1	.01	7	.044	28.8	31	200	"	"
AFT ACCOM. D.B.	1	.01	7	.044	13.8	31	450	"	"
NAVIGATION.	1	.007	7	.036	7.6	24	460	"	"
WIRELESS	1	.0145	7	.052	25	37	400	"	"
SEARCHLIGHT	1	.0225	7	.064	60	75	730	Varn. Cambric	"
MASTHEAD LIGHT	1	.0015	1	.044	.36	6.1	800	Rubber	"
SIDE LIGHTS	1	.0015	1	.044	.36	6.1	90	"	"
COMPASS LIGHTS	1	.0015	1	.044	.36	6.1	30	"	"
POOP LIGHTS									
CARGO LIGHTS	1	.0145	7	.052	17.3	37	400	"	"
ARE LAMPS	1	.0145	7	.052	26.4	37	30	"	"
HEATERS	1	.003	1	.064	9.1	12.9	112	"	"

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.	Rate.			
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										
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	.0045	7	.029	17.4	18.2	100	Rubber	L.C.A.B.
VENTILATING FANS										
LATHE	1	1	.0045	7	.029	14.1	18.2	100	"	"
BRINE PUMPS	2	1	.0145	7	.052	34	37	126	"	L.C.B.
PURIFIER	1	1	.003	1	.064	9.25	12.9	45	"	L.C.A.B.

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.Pro. THE SUNDERLAND FORGE & ENGINEERING CO.LTD. Electrical Engineers.

Date 29th March 1938.

J.C. Shanks

COMPASSES.

Distance between electric generators or motors and standard compass

140 ft

Distance between electric generators or motors and steering compass

136 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 10 Amperes led into feet from standard compass 6 feet from steering compass.

A cable carrying 10 Amperes 6 feet from standard compass led into feet from steering compass.

A cable carrying 7.6 Amperes 16 feet from standard compass 12 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 1/2 degrees on Any course in the case of the standard compass, and 1/2 degrees on Any course in the case of the steering compass.

For WILLIAM HAMILTON & CO., LTD.

W.H.M.

Builder's Signature.

Date 30th March 1938.

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

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electrical equipment of

this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship are good

2/4/38.

*Noted
7/4/38*

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... £ 22 : 10 : 0 ac 9th

When applied for.

Travelling Expenses (if any) £ 3/6 31. 19 38

When received.

L. Haffner. R.P. Hurchison.
Surveyors to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 5 - APR 1938

Assigned SEE ACCOMPANYING MACHINERY REPORT.

750,936.—Transfer.
The Surveyors are requested not to write on or below this space for Committee's Minute.)



© 2020

Lloyd's Register Foundation