

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

AUG 9 1937

Received at London Office

Date of writing Report 21.7.37 19 When handed in at Local Office 19 Port of HAMBURG

No. in Survey held at Kiel Date, First Survey 2.6.37 Last Survey 9.7.37 19  
(Number of Visits 7)

Reg. Book. 13046 on the Steel Se. Sr. "Coimbra" Tons { Gross 6768  
Net 3976

Built at Kiel By whom built Hovaldtsverke A.S. Yard No. 756 When built 1937

Owners Standard Transportation Co Hongkong Port belonging to London

Electric Light Installation fitted by Allgemeine Elektrizitäts-Gesellschaft Contract No. When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk yes.

System of Distribution 2 wire systemPressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 volts.Direct or Alternating Current, Lighting D.C. Power D.C.

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 yesGenerators, do they comply with the requirements regarding temperature rise yes, are they compound wound yesare they over compounded 5 per cent. yes, if not compound wound state distance between each generatorWhere 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 yesHave certificates of test results for machines under 100 kw. been submitted and approved attached hereto Have machines over 100 kw. been inspected by the Surveyors during manufacture and testingAre 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 yesAre the lubricating arrangements of the generators as per Rule yesPosition of Generators Green dk. in engine room aft, is the ventilation in way of the generators satisfactory yesare 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 generatorsare the generators protected from mechanical injury and damage from water, steam or oil yes, are their axes of rotation fore and aft yesEarthing, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers and their respective generators in metallic contact yesMain Switch Boards, where placed Green deck in engine room aft

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 yes, are they constructed wholly of durable, non-ignitable non-absorbent materials marble, tested 2000 V AC 1'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 yesis the non-hygroscopic insulating material of an approved type yes, and is the frame effectively earthed yesAre the fittings as per Rule regarding:— spacing or shielding of live parts yes, accessibility of all parts yesabsence of fuses on back of board yes, temperature rise of omnibus bars yesindividual fuses to voltmeter, pilot or earth lamp yes, are moving parts of switches alive in the "off" position noare 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

Generators: Fuse on each pole overload circ. breaker Outg. Circuits: Double pole change over swith. Fuse on each pole.

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 yesInstruments on main switchboard 2 ammeters 2voltmeters yes 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

Vohmeter with Ohm - Scale yes Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yesare 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* *German Standards*

Cables: Single, twin, concentric, or multicore *yes* 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 *yes* Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *2.5 Volts* ✓

area of 0.04 square inch and above provided with soldering sockets *yes* ✓ Cable Sockets, are the ends of all cables having a sectional 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 *none*, 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 *in conduit*

Support and Protection of Cables, state how the cables are supported and protected *armoured cables supported by clips. There exposed to risk of damage covered with sheet iron. In eng. and boiler room running in conduit*

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 *watertight joint boxes.* ✓

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 *yes* 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 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 *none*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *in pump room lighting from outside.* ✓, how are the cables led *yes*

where are the controlling switches situated *bridge house*

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 *1*, whether fixed or portable *portable* ✓, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *1*, 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* ✓, 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 *yes* and *yes*

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	40	115	174	400	Steam engine.			
AUXILIARY ...	(20 each)								
EMERGENCY ...									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet. m.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins. %	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ... each	1	120	61	1.59	174	177 ✓	20	Rubber	Lead covered and armoured
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR...									
ENGINE ROOM. } 12 circuits	1	1.5	1	1.38	max 4	9 ✓	100		
BOILER ROOM.									
AUXILIARY SWITCHBOARDS : ...									
I Bridge deck	1	120	61	1.59	168	177 ✓	250		
II " house									
III Aft Ship	1	35	19	1.53	68	78 ✓	82		
IV " "									
V Fore "	1	4	19	.52	16	22.5 ✓	150		
ACCOMMODATION ...									
Shore connection	1	120	61	1.59	200 Amp fused	177 ✓	40		
WIRELESS ...	1	16	19	1.06		49 ✓	230		
SEARCHLIGHT ...	1	4	19	.52	18	22.5 ✓	120		
MASTHEAD LIGHT ...	1	1.5	1	1.38	.4	9 ✓	120 160		
SIDE LIGHTS ...	1	1.5	1	1.38	.4	9 ✓	18 18		
COMPASS LIGHTS ...	1	1.5	1	1.38	.2	9 ✓	12		
POOP LIGHTS ...	1	1.5	1	1.38	.4	9 ✓	230		
CARGO LIGHTS ...	1	1.5	1	1.38	4	9 ✓	about 100		
ARC LAMPS ...	1								
HEATERS ...	1	6	19	.61	18	29 ✓	20		

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 ...									Rubber	Lead covered and armoured
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 ...	1	1	1.5	1	1.38	3.5	9 ✓	20		
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										
VENTILATING FANS										
Drilling machine	1	1	4	19	.52	20	22 ✓	26		
Lathe	1	1	2.5	19	1.30	58	63 ✓	20		
Grinding "	1	1	2.5	1	1.78	16	16 ✓	20		



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.

ALLGEMEINE ELEKTRO-GESELLSCHAFT  
ABTEILUNG SCHIFFBAU

Electrical Engineers.

Date

#### COMPASSES.

Distance between electric generators or motors and standard compass 23 m

Distance between electric generators or motors and steering compass 76 m

The nearest cables to the compasses are as follows:—

A cable carrying 2 Ampères close to feet from standard compass close to feet from steering compass.

A cable carrying Ampères feet from standard compass feet 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 *any* course in the case of the standard

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

Howaldtswerke A.-G.

Builder's Signature.

Date

Is this installation a duplicate of a previous case *no* If so, state name of vessel

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

This electric installation has been fitted in accordance with the approved plans, the Secretary's letters and in compliance with the Rules. Materials and workmanship are of good quality. It has given satisfaction under working conditions and was found in order.

Please note: All of the approved plans have been retained for further reference in case of the sister vessel Yara No. 774.

Total Capacity of Generators 40.— Kilowatts.

The amount of Fee ... 2 mks 500.—

When applied for,

22. 7. 1937

When received,

19. 8. 1937

Travelling Expenses (if any) £ —: —:

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 17 AUG 1937

Assigned

All Ham. J.E.

22443

2m. 534.— Transfer.  
The Surveyors are requested not to write on or below the space for Committee's Minute.



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Foundation