

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

30 OCT 1935

Received at London Office

Date of writing Report 21st Oct. 1935 When handed in at Local Office 28. 10. 1935 Port of Glasgow
 No. in Survey held at Greenock Date, First Survey 10th Oct Last Survey 19th October 1935
 Reg. Book. 37040 on the M.V. "ACCRUITY" (Number of Visits 3)
 Tons { Gross 465
 Net 237
 Built at Greenock By whom built G. Brown & Co Yard No. 190 When built 1935
 Owners H. J. Grewart & Sons Ltd Port belonging to London.
 Electric Light Installation fitted by Bland Hamilton Ltd Contract No. 190 When fitted 1935
 Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution Two wirePressure of supply for Lighting 110 volts, Heating - volts, Power 110 volts.Direct or Alternating Current, Lighting DirectPower DirectIf 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 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 YesHave 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 YesPosition of Generators In Engine Room bottom platform., is the ventilation in way of the generators satisfactory Yes are they clear of all inflammable material Yes if situated near unprotectedwoodwork 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 YesEarthing, 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 In Engine Room on aft. bulkhead.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 samehorizontally 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 Yesis 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 Sliding panel is the non-hygroscopic insulating material of an approvedtype Yes, and is the frame effectively earthed Yes 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 ofomnibus 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 ofswitches no Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Four pole change-over switch controlling two generators (one not yet fitted) connected to allow correct distribution of power to wind and steering gear circuits. Generator protected by D.P. fuse. D.P. fuse & SP switch on circuit breaker 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 1 ammeters 1voltmeters - 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

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Foundation

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 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 3.7 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 —, or waterproof insulating tape — 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 Keins + Circuit Wiring. V.I.R. braded in galvanized tubing.

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 —

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements —

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 None state the material of which the bushes are made —

Earthing Connections, state what earthing connections are fitted and their respective sectional areas —

are their connections made as per Rule —

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 these separately wired None, controlled by separate switch and separate fuses —, are the fuses double pole —, are the switches and fuses grouped in a position accessible only to the officers on watch —

has each navigation lamp an automatic indicator as per Rule — 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 —

where are the controlling switches situated —

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 —, are air heaters constructed and fitted as per Rule —

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

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 Keins + Circuit Wiring, 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 — 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 —

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 — are all fuses of the filled cartridge type — 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 —

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule —

PARTICULARS OF GENERATING PLANT.										
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.			
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.		
MAIN ...	1	14	110	127	1000	Oil Engine	Diesel Oil	Above 150° F		
AUXILIARY ...										
EMERGENCY ...										
ROTARY TRANSFORMER										
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	No. of	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		14780	37	.072	127	152	30	V.I.R	Galv. tubing
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR ...	1		02840	19	.044	52	53	80	V.I.R	Galv. tubing
EMERGENCY GENERATOR										
ROTARY TRANSFORMER										
ENGINE ROOM ...	1		00194	3	.029	2.8	7.8	10	V.I.R	Galv. tubing
BOILER ROOM ...										
AUXILIARY SWITCHBOARDS										
ACCOMMODATION										
WIRELESS										
SEARCHLIGHT										
MASTHEAD LIGHT										
SIDE LIGHTS										
COMPASS LIGHTS										
POOP LIGHTS										
CARGO LIGHTS										
ARC LAMPS										
HEATERS										
MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	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.	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	1	1	14780	37	.072	70	152	300	V.I.R	Galv. tubing
WINCHES, AFT	1	1	14780	37	.072	70	152	80	V.I.R	Galv. tubing
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	02214	7	.064	46	46	200	V.I.R	Galv. tubing
WORKSHOP MOTOR										
VENTILATING FANS										

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.

FOR CLAUD HAMILTON, LIMITED

A. Limmer.

MANAGER

Electrical Engineers.

Date 24-10-35.

COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

6 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 46 Ampères — feet from standard compass 6 feet from steering compass.

A cable carrying 70 Ampères — feet from standard compass 20 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 — degrees on — course in the case of the standard compass, and 1 1/2 degrees on any course in the case of the steering compass.

Geo. Brown & Co

Builder's Signature.

Date 25-10-35

Is this installation a duplicate of a previous case Yes If so, state name of vessel h.v. "Arcity"

General Remarks (State quality of workmanship, opinions as to class, &c. This installation has been fitted on

board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found good and sound.

It is the intention of the owner to fit an additional 5.75 K.W. generating set at a later date. The cables for this generator are fitted, together with the necessary switch & fuses on the main switch board. The maker's test certificate of the machine is attached hereto

28/10/35

Wid

L.H.

31/10/35

Total Capacity of Generators 19.75 Kilowatts.

The amount of Fee £ 10 : 15 : 0 at 1/10

(including 5.75 K.W. generator)

Travelling Expenses (if any) £

9/-

When applied for,

When received,

29.11.35

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 29 OCT 1935

Assigned

SEE ACCOMPANYING MACHINERY REPORT.