

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office JUN 14 1937

Date of writing Report 10 When handed in at Local Office 12/6/1937 Port of **NEWCASTLE-ON-TYNE**
 No. in Survey held at **Newcastle** Date, First Survey **30 March** Last Survey **3rd June 1937**
 Reg. Book. **Suff.** (Number of Visits.....5.....)
 88726 on the **S.S. "Inkosi"** Tons { Gross
 Net
 Built at **Newcastle** By whom built **S.H + W.R. Gold** Yard No. **1525** When built **1937**
 Owners **Charente S.S. Co. Ltd.** Port belonging to **Liverpool**
 Electric Light Installation fitted by **S.H + W.R. Gold** Contract No. **1525** When fitted **1937**
 Is the Vessel fitted for carrying Petroleum in bulk **no.**

System of Distribution Double wire
Pressure of supply for Lighting 220 volts, **Heating** — volts, **Power** 220 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 Yes, 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 —
 Have certificates for generators under 100 kw. been supplied and approved Yes (3 in ho attached herewith).
 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 starboard side, 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 starboard side
 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 Yes, 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, 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 Triple pole C.B. for each generator. DP S + DP 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 Yes **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 Yes
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 Yes have the reversed

see certificates

current protection devices been tested under working conditions Yes are all fuses labelled as per rule 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 are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII 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 4.5 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 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 laid under machines or floorplates Yes if so, are they adequately protected 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 LC in acc, LC+A in machinery spaces, LC+B on outside decks

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 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 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 Boat deck midships O.P. C.O.S between main & emergency boards. Dynamo driven by petrol-paraffin engine

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 are they ventilated 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 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

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 have certificates for all motors for essential services been supplied and approved 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 filled 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 flameproof type approved for use in dangerous spaces Yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes are they suitably stored in dry situations 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 | 85 | 220 | 384 | 450 | Steam engine | | |
| AUXILIARY | | | | | | | | |
| EMERGENCY | 1 | 15 | 220 | 68 | 1000 | Petrol-paraffin engine | | |
| 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. | Rule. | | | |
| MAIN GENERATOR | 1 | .6 | 91 | .093 | 384 | 384 | 60 | V.I.R. | LC+A |
| EQUALISER CONNECTIONS | 1 | .25 | 37 | .093 | | 214 | 30 | 50 | 50 |
| AUXILIARY GENERATOR | | | | | | | | | |
| EMERGENCY GENERATOR | 1 | .06 | 19 | .064 | 68 | 83 | 30 | 50 | 50 |
| ROTARY TRANSFORMER MOTOR | 1 | .002 | 3 | .029 | 2.72 | 7.8 | 30 | 50 | 50 |
| ROTARY TRANSFORMER GENERATOR | 1 | .0045 | 7 | .029 | 10.4 | 18.2 | 30 | 50 | 50 |
| ENGINE ROOM | | | | | | | | | |
| BOILER ROOM | 1 | .01 | 7 | .044 | 16 | 31 | 30 | 50 | 50 |
| AUXILIARY SWITCHBOARDS | | | | | | | | | |
| Bakers Oven | 1 | .0225 | 7 | .064 | 36 | 46 | 200 | 50 | 50 |
| Navigation | 1 | .0045 | 7 | .029 | 6 | 18.2 | 240 | 50 | LC+B. |
| ACCOMMODATION Pass | 1 | .02 | 19 | .052 | 58 | 64 | 80 | 50 | LC+A |
| Officers Sten | 1 | .02 | 19 | .052 | 56 | 64 | 80 | 50 | 50 |
| Public Rooms | 1 | .0225 | 7 | .064 | 25 | 46 | 80 | 50 | 50 |
| WIRELESS | 1 | .01 | 7 | .044 | 15 | 31 | 220 | 50 | LC+B. |
| SEARCHLIGHT | 1 | .04 | 19 | .052 | 45 | 64 | 500 | 50 | 50 |
| MASTHEAD LIGHT | 1 | .002 | 3 | .029 | 18 | 7.8 | 450 | 50 | LC |
| SIDE LIGHTS | 1 | .002 | 3 | .029 | 18 | 7.8 | 80 | 50 | 50 |
| COMPASS LIGHTS | 1 | .002 | 3 | .029 | 07 | 7.8 | 40 | 50 | 50 |
| STEERAGE LIGHTS | 1 | .002 | 3 | .029 | 18 | 7.8 | 400 | 50 | 50 |
| CARGO LIGHTS | 1 | .01 | 7 | .044 | 17 | 31 | 80 | 50 | LC+A. |
| 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 | 1 | 1 | .04 | 19 | .052 | 48 | 64 | 200 | V.I.R. | LC+A. |
| 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 | .007 | 7 | .036 | 14 | 24 | 140 | 50 | LC+B. |
| VENTILATING FANS | | | | | | | | | | |
| Ash Hoist | 1 | 1 | .0045 | 7 | .029 | 10 | 18.2 | 160 | 50 | LC+A. |

The Electrical Equipment is installed in accordance with the approved plans.
 All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
 The foregoing is a correct description.

For
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Electrical Engineers.

Date 11th June 1937.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 130 feet.

Minimum distance between electric generators or motors and steering compass 128 feet.

The nearest cables to the compasses are as follows:—

A cable carrying .18 Ampères on the feet from standard compass 6 feet from steering compass.

A cable carrying .18 Ampères 6 feet from standard compass on the 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 all course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

FOR
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Builder's Signature.

Date June 11th 1937.

W. Buckie

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, etc. The above instⁿ has been fitted out under special survey. The materials used & workmanship good. Insulation resistance good. The dynamo, governors, & all power & lighting circuits etc & tested under working conditions & found satisfactory. This vessel is eligible in my opinion for notation. D.F.

W. T. Badger
 14/6/37.

2m. 12.36.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute

Total Capacity of Generators 185 Kilowatts.

| | | |
|--------------------------------|----------|----------------------------------|
| The amount of Fee | £ 41 : — | } When applied for, 10.6.1937 |
| Travelling Expenses (if any) £ | : | |

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

Committee's Minute

Assigned

See Mv. G.E. 95730

TUE 15 JUN 1937



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