

Rpt. 13.

No. 95130

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office JUN 14 1937

Date of writing Report

19

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. Suth.

(Number of Visits.....)

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 Chasente 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

Dangle 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, is the ventilation

Position of Generators Engine room starboard side

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. 50 S + 50 P 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

voltage meters 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, Yes have the reversed

do these comply with the requirements of the Rules. Yes are the fusible cutouts of an approved type Yes

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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 *—* **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 *—* or waterproof insulating tape *—* **Cable Runs,** are the cables sized 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 *—*

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 *—*, 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*

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 *—* 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 *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 *—* are they ventilated 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 *—* how are the cables led *—* where are the controlling switches situated *—* are all fittings suitably ventilated *—* are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *—*

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 *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 *—* 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 *—* have certificates for all motors for essential services been supplied and approved *—* **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 flameproof type approved for use in dangerous spaces *—* **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.	Amperes.	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.		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	.6	91	.093	384	384	60	V.I.R.	L.C.+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	1	.002	3	.029	2.72	7.8	30	50	50
MOTOR 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 Ovens	1	.0225	7	.064	36	46	200	50	50
Navigation	1	.0045	7	.029	6	18.2	240	50	L.C.+B.
ACCOMMODATION Pass	1	.04	19	.052	58	64	80	50	L.C.+A.
" Officers Mess	1	.04	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	L.C.+B.
SEARCHLIGHT	1	.04	19	.052	45	64	500	50	50
MASTHEAD LIGHT	1	.002	3	.029	18	7.8	450	50	L.C.
SIDE LIGHTS	1	.002	3	.029	18	7.8	80	50	50
COMPASS LIGHTS	1	.002	3	.029	07	7.8	40	50	50
STEERING LIGHTS	1	.002	3	.029	18	7.8	400	50	50
CARGO LIGHTS	1	.01	7	.044	17	31	80	50	L.C.+A.
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	1	1	.04	19	.052	48	64	200	V.I.R.	L.C.+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	L.C.+B.
VENTILATING FANS										
Asch Hoist	1	1	.0045	7	.029	10	18.2	160	50	L.C.+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 Amperes on the feet from standard compass 6 feet from steering compass.

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

A cable carrying Amperes 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.

Is this installation a duplicate of a previous case ho 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 exc^d & tested under working conditions & found satisfactory. This vessel is eligible in my opinion for notation. D.F.

W.T. Badger

14/6/37.

Total Capacity of Generators 185 Kilowatts.

The amount of Fee ... £ 41 : - : When applied for, 10.6.1937

Travelling Expenses (if any) £ : : When received, 15.6.1937

W.T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See Mv. J.E. 95730



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