

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 12 NOV 1935

Date of writing Report 1935 When handed in at Local Office 9/11/1935 Port of Newcastle-on-Tyne

No. in Survey held at Newcastle Reg. Book. Supp Date, First Survey 19/8/35 Last Survey 6/11/1935

40451 on the S.S. "Umtata" (Number of Visits.....)

Tons { Gross 8400 Net 5260.81

Built at Newcastle By whom built S. H. Wigham Richardson No. 1480 When built 1935

Owners Bullard King & Co. Port belonging to London

Electric Light Installation fitted by Swan Hunter & Wigham Richardson No. 1480 When fitted 1935

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double Wire

Pressure of supply for Lighting 220 volts, Heating 220 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 No, is an adjustable regulating resistance fitted in series with each shunt field

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

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

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, 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

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

D.P. circuit breaker for each main generator. S.P. 2 way switch with D.P. fuses for each outgoing circuit.

Are turbo 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

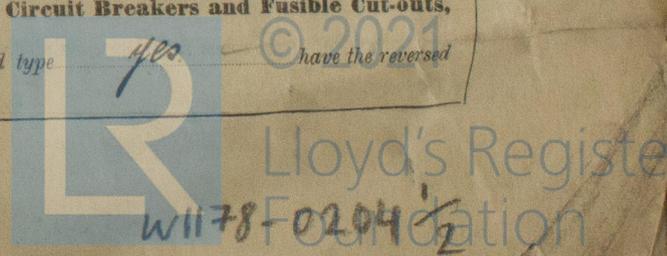
Instruments on main switchboard 2 ammeters 2

voltmeters — synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Lamps connected to earth through switches and 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



current protection devices been tested under working conditions *None*. **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 *—*. **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load *4 Volts for Lighting, 6.5 Volts for Power*. **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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Lead covered*.

Support and Protection of Cables, state how the cables are supported and protected *L.C. & R. in machinery spaces, lead covered in accommodation clipped to structure, lead covered & braided in galv. iron pipes along 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*.

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 *Rubber*.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *None*.
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, emergency switchboard with change over switch for main & emergency dynamos. Emergency generator driven by Diesel 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 *—*.

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 *None*.
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 *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 *None*, whether fixed or portable *—*, are their fittings as per Rule *—*.

Arc Lamps, other than searchlight lamps, No. of *None*, 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*, 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 *None*. **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 *—* 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 *yes*.

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 ...	2	145	220	496	Steam Engine			
AUXILIARY ...								
EMERGENCY ...	1	22	220	100	Diesel 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 ...	2	.8	61	.093	496	834	50	Varn. Cambric	L. C. & R.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...	1	.2	19	.083	100	172	30	Varn. Cambric	L. C. & R.
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	1	.0045	7	.029	18	18.2	40	Rubber	L. C. & R.
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Passenger Heating	1	.8	61	.093	356	417	80	Varn. Cambric	L. C. & R.
Officers, & Engg. Heating	1	.06	19	.064	74	83	80	Rubber	"
ACCOMMODATION ...									
Passenger Accommod.	1	.06	19	.064	73	83	80	Rubber	L. C. & R.
Officers, Engg. & Crew	1	.04	19	.052	56	64	80	"	"
Emergency Lighting	1	.0045	7	.029	14	18.2	30	"	Lead covered.
Navigation & Boat Deck	1	.007	7	.036	10	24	200	"	"
WIRELESS ...	1	.01	7	.044	15	31	160	"	"
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.002	3	.029	18	4.8	500	"	"
SIDE LIGHTS ...	1	.002	3	.029	18	4.8	100	"	"
COMPASS LIGHTS ...	1	.002	3	.029	07	4.8	50	"	"
POOP LIGHTS ...	1	.002	3	.029	18	4.8	820	"	"
CARGO LIGHTS ...	1	.01	7	.044	18	31	80	"	L. C. & R.
ARC LAMPS ...									
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	.06	19	.064	75	83	260	Rubber	L. C. & R.
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR ...										
FRESH WATER PUMP ...	1	1	.0045	7	.029	16	18.2	50	Rubber	L. C. & R.
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 ...	3	1	.002	3	.029	4	4.8	30	Rubber	L. C. & R.
VENTILATING FANS ...	1	1	.0045	7	.029	14.5	18.2	100	"	"
Provision Refriger. Plants	2	1	.0045	7	.029	12	18.2	60	"	"
Brine Pump	2	1	.04	19	.052	61	64	140	"	"
Mine Pump	1	1	.0045	7	.029	13.3	18.2	50	"	"
Hold Cooler Fan	1	1	.0225	7	.064	40	46	440	"	L. C. & R.
" " "	5	1	.0225	7	.064	34	46	440	"	"

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 SWAN, HUNTER & WIGHAM RICHARDSON

Electrical Engineers.

Date 24th Oct 1935

COMPASSES.

Distance between electric generators or motors and standard compass 130 feet.

Distance between electric generators or motors and steering compass 125 feet.

The nearest cables to the compasses are as follows:

A cable carrying .07 Ampères in feet from standard compass in feet from steering compass.

A cable carrying .18 Ampères 5 feet from standard compass 5 feet from steering compass.

A cable carrying .18 Ampères 8 feet from standard compass 8 feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power NO

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 courses in the case of the standard compass, and nil degrees on all courses in the case of the steering compass.

SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

W. Morrison

Builder's Signature.

Date 5 Nov 1935

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. The above instⁿ has been fitted out under special survey. The materials used & workmanship are good. Insulation resistance good. On completion the instⁿ was tested in accordance with the requirements of the Rules & found to be satisfactory. The vessel is eligible in my opinion for notation D.F.

W. T. Badger
14/11/35

Total Capacity of Generators 372 Kilowatts.

The amount of Fee

£ 40.16.0

When applied for.

8.11.1935

When received.

19.11.1935

Travelling Expenses (if any) £

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

Committee's Minute

Assigned

5m. 591. - Transfer. The Surveyors are requested not to write over or within the space for Committee's Minute.



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