

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-8 JUL 1936

Received at London Office

Date of writing Report

19

When handed in at Local Office

2/7/1

1036

Port of

NEWCASTLE-ON-TYNE

No. in Survey held at

Newcastle on Tyne

Date, First Survey

17 April

Last Survey

19 May 1936

Reg. Book, Subh

(Number of Visits.....5.....)

40457 on the

S.S. "Umtali"

Tons

Gross 8158.11

Net 5083.79

Built at

Newcastle.

By whom built

Swan Hunter & W.R. & Co. Ltd.

Yard No.

1492

When built

1936

Owners

Bullard King & Co. Ltd.

Port belonging to

London.

Electric Light Installation fitted by

Swan Hunter & Wigham Richardson

Contract No.

1492

When fitted

1936.

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

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

Yes

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

accessibility of all parts

Yes

Yes

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.C.B. for each generator. S.P.-2 way switch with 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

voltage

—

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

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

current protection devices been tested under working conditions *none.*

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 *—*

any point of the installation under maximum load *4.5 for lighting, 6.5 for power*

area of 0.04 square inch and above provided with soldering sockets *Yes*

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*

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 *LC+A in machinery spaces, LC in accⁿ clipped to structure, LC+B 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 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 *rubber*

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

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Yes*

position and method of control of the emergency supply and how the generator is driven *Boat deck emergency switchboard with C.O.S. for main & emergency dynamo. Emergency gen 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 *—*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *—*

are the cables led *—*, 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 *Yes*

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

Arc 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*, 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 *Yes*

field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes*

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 *Yes*

Joint Boxes, Section and Distribution Boards, is the

Fall of Pressure, state maximum between bus bars and

Cable Sockets, are the ends of all cables having a sectional

Paper Insulated and Varnished Cambric Insulated Cables.

Cable Runs, are the cables fixed as far as possible in accessible positions

lead covered

LC+A in machinery spaces, LC in accⁿ

clipped to structure, LC+B in galv iron pipes along decks.

Yes, are the cap screws of brass Yes, are the cables run in

Yes, are the clips spaced as per Table VIII Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

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	175	220	796	450	Steam engine		
AUXILIARY ...						Steam engine		
EMERGENCY ...	1	22	220	100		Diesel 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.	Circuits.	Rule.			
MAIN GENERATOR ...	2	.8	61	.093	796	834	50	V.C.	LC+A+B
EQUALISER CONNECTIONS ...	2	.8	6	.093	834	834	50	V.C.	LC+A+B
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...	1	.2	19	.083	100	172	30	V.C.	LC+A
ROTARY TRANSFORMER MOTOR GENERATOR ...	2	.2	19	.083	100	172	30	V.C.	LC+A
ENGINE ROOM ...									
BOILER ROOM ...	1	.0045	7	.029	18	18.2	40	V.I.R	LC+A
AUXILIARY SWITCHBOARDS ...									
Passengers Heating ...	1	.8	61	.093	356	417	80	V.C.	LC+A
Officers Mess Heating ...	1	.06	19	.064	74	83	80	V.I.R	LC+A
Accommodation Passages ...	1	.06	19	.064	73	83	80	50	50
Officers Mess Heating ...	1	.04	19	.052	56	64	80	50	50
Emergency Lighting ...	1	.0045	7	.029	14	18.2	30	50	LC
Navigation Deck ...	1	.007	7	.036	10	24	200	50	50
WIRELESS ...	1	.01	7	.044	15	31	160	50	50
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.002	3	.029	18	7.8	500	50	50
SIDE LIGHTS ...	1	.002	3	.029	18	7.8	100	50	50
COMPASS LIGHTS ...	1	.002	3	.029	07	4.8	50	50	50
FOOD LIGHTS ...	1	.002	3	.029	18	7.8	220	50	50
CARGO LIGHTS ...	1	.01	7	.044	18.0	31.0	80	50	LC+A
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 Circuits.	Rule.			
BALLAST PUMP ...										
MAIN BILGE LINE PUMPS ...										
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...	1	1	.06	19	.064	75	83	260	V.I.R	LC+A
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR ...										
HOT. FRESH WATER PUMP ...	1	1	.0045	7	.029	16	18.2	50	50	50
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	7.8	30	50	50
VENTILATING FANS ...	1	1	.0045	7	.029	14.5	18.2	100	50	50
Provision Refrig. plants ...	2	1	.0045	7	.029	12.0	18.2	60	50	50
Drain pump ...	2	1	.01	19	.052	61	64	140	50	50
Hold cooler fan ...	1	1	.0045	7	.029	13.3	18.2	50	50	50
50	1	1	.0225	7	.064	40	46	440	50	LC+B
50	5	1	.0225	7	.064	34	46	440	50	50

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, LTD.

Electrical Engineers.

Date 9th June 36.

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? The following will be fitted in after sea trial. W.T.B.

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.

SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

Builder's Signature.

Date 10th June 1936

Is this installation a duplicate of a previous case? Yes If so, state name of vessel S.S. "Umtata"

General Remarks (State quality of workmanship, opinions as to class, &c. The above instⁿ has been fitted out under special survey. The workmanship & materials used were good. On completion the dynamo, governor, main board fuses cables & fittings examined & tested under working conditions & found satisfactory. The insulation resistance found good. The result is eligible in my opinion for notation. D.F.

Noted

Ym

10.7.36

Total Capacity of Generators 372 Kilowatts.

The amount of Fee ... £ 51: 2 : When applied for, 27 JUL 1936

Travelling Expenses (if any) £ : : When received, 11.7.36

Committee's Minute 10 JUL 1936

Assigned

See other hwe 78
93942

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



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Foundation