

Rpt. 13.

No. 48094

REPORT ON ELECTRIC FITTINGS

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 6. 6. 1928 When handed in at Local Office 23. 6. 1928 Port of GLASGOW.

No. in Survey held at DALMUIR. Date, First Survey 1. 12. 27 Last Survey 18. 6. 1928
Reg. Book. (Number of Visits 25)HOS 38 on the S. S. DUCHESS OF ATHOLL.
Built at DALMUIR. By whom built WM BEARDMORE & CO Yard No. 648 When built 1928.
Owners THE CANADIAN PACIFIC S. S. CO. Port belonging to

Electric Light Installation fitted by MESSRS WM BEARDMORE & CO. LTD Contract No. 648 When fitted 1928.

System of Distribution TWO 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 rating YES, are they compound wound YES

are they over compounded 5 per cent. 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

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

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

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

are they constructed wholly of durable, non-ignitable non-absorbent materials YES, is all insulation of high electric strength and of permanently high insulation resistance YES

if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygrosopic insulating material, and the slab similarly insulated from its framework

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, proportion of omnibus

bars YES, individual fuses to voltmeter, pilot or earth lamp YES, connections of switches YES

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

DOUBLE POLE MAIN & EQUALISER BREAKER WITH NO VOLT, OVERLOAD, & REVERSE CURRENT COILS FOR EACH GENERATOR

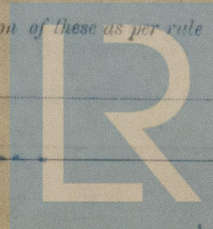
Instruments on main switchboard 5 ammeters 5 voltmeters synchronising device for paralleling purposes.

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

INDICATOR & EARTH LAMPS

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YES

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES

Lloyd's Register
Foundation

W 1168-0308

410221
Cables: Single, twin, concentric, or multicore SINGLE are the cables insulated and protected as per Tables IV or V of the Rules YES
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 8
Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets
WOODEN
Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound 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
Support and Protection of Cables, state how the cables are supported and protected L.C. & B. CABLES ARE SECURED TO WOOD OR METAL TRAYS BY CLIPS
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
Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements YES
Joints in Cables, state if any, and how made, insulated, and protected YES
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
EMERGENCY SUPPLY FROM OIL DRIVEN GENERATOR THROUGH SWITCHBOARD IN EMERGENCY GENERATOR ROOM ON "C" DECK
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
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
PENDANT IS REMOVED & LAMPHOLDER COVER SCREWED ON
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
Searchlight Lamps, No. of 2 FLOOD LIGHTS, whether fixed or portable CAPTAINS B.O., are their fittings as per Rule YES
Are Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, 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 —, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, flame protected, 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 —
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 —
If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office —

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	500	225	2220	670	STEAM TURBINE			
AUXILIARY	2	450	225	2000	250	DIESEL ENGINE			
EMERGENCY	1	75	225	333	530	OIL ENGINE			
ROTARY TRANSFORMER									

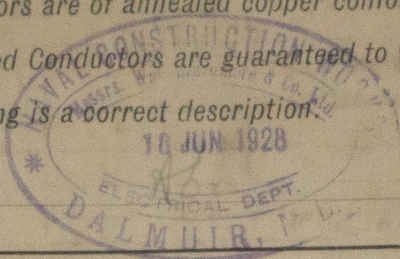
TYPICAL LIGHTING AND HEATING CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	3.0	4	3x.25	2220	36	EMPAIRE TAPE	SHEET IRON COVERED
	EQUALISER CONNECTIONS	1	1.5	2	3x.25	1110	18	"	"
	MAIN AUXILIARY GENERATOR	10	.7435	91	.103	2000	150	V.I.R.	BRAIDED
	EQUALISER CONNECTION	3	.7435	91	.103	1000	75	"	"
	EMERGENCY GENERATOR	2	.7435	91	.103	333	90	"	"
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS	4	.6062	91	.093	83	381	PAPER	L.C. & B.
	ENGINE ROOM	4	.6062	91	.093	976	428	"	"
	BOILER ROOM	4	.6062	91	.093	1902	381	"	"
	ACCOMMODATION	2	.4985	61	.103	271	267	V.I.R.	L.C. & B.
	"	2	.6062	91	.093	512	516	"	"
	"	4	.6062	91	.093	410	536	"	"
	"	8	.7435	91	.103	1091	140	"	"
	"	2	.4985	61	.103	520	285	"	"
	"	2	.4985	61	.103	61	258	"	"
	"	2	.8459	127	.093	541	254	"	"
	"	2	.8459	127	.093	541	270	"	"
	"	4	.6062	91	.093	359	540	"	L.C. & B.
	"	4	.6062	91	.093	379	297	"	"
	"	2	.4985	61	.103	125	510	"	L.C. & B.
	WIRELESS	2	.0145	7	.052	12	1020	"	"
	SEARCHLIGHT								
	MASTHEAD LIGHT	2	.0045	7	.029	.45	500	"	L.C. & B. & TUBING ON MAST
	SIDE LIGHTS	2	.0019	3	.029	.45	75	"	L.C. & B.
	COMPASS LIGHTS	2	.0019	3	.029	.45	75	"	"
	POOP LIGHTS	2	.0045	7	.029	.45	120	"	"
	CARGO LIGHTS	2	.0045	7	.029	.45	120	"	"
	ARC LAMPS								
	HEATERS	2	.0045	7	.029	.45	90	"	CASING

TYPICAL MOTOR CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP		.1478	37	.072	147	45	V.I.R.	L.C. & B.
	MAIN BILGE LINE PUMPS		.1478	37	.072	147	45	V.I.R.	"
	GENERAL SERVICE PUMP		.1478	37	.072	147	45	"	"
	EMERGENCY BILGE PUMP		.0600	19	.064	72	900	"	"
	SANITARY PUMP		.1478	37	.072	147	45	"	"
	CIRC. SEA WATER PUMPS		.0221	7	.064	25	171	"	L.C. & B.
	CIRC. FRESH WATER PUMPS		.0221	7	.064	44	216	"	"
	AIR COMPRESSOR		.0045	7	.029	15	225	"	"
	FRESH WATER PUMP		.0146	7	.052	34	216	"	"
	ENGINE TURNING GEAR		.0600	19	.064	80	180	"	L.C. & B.
	ENGINE REVERSING GEAR							"	"
	LUBRICATING OIL PUMPS		.1009	19	.083	100	150	"	"
	OIL FUEL TRANSFER PUMP		.0600	19	.064	80	144	"	"
	WINDLASS		.8459	127	.093	918	220	"	"
	WINCHES, FORWARD		.1009	19	.083	130	133	"	CASING
	WINCHES, AFT		.1009	19	.083	130	135	"	"
	STEERING GEAR							"	"
	(a) MOTOR GENERATOR							"	"
	(b) MAIN MOTOR		.1478	37	.072	150	426	"	L.C. & B.
	WORKSHOP MOTOR		.0045	7	.029	16	126	"	"
	VENTILATING FANS BOILER ROOM		.0029	3	.036	8	270	"	"
	FORCED DRAUGHT		.0600	19	.064	83	210	"	L.C. & B.
	ENGINE ROOM FAN		.0221	7	.064	40	216	"	L.C. & B.
	"		.0104	7	.044	28	216	"	"
	VENTILATING FAN		.0070	7	.036	22	192	"	L.C. & B.
	"		.0029	3	.036	9	48	"	"
	"		.0029	3	.036	6	78	"	"
	CAPSTAN AFT		.2465	37	.093	264	135	"	"
	" FORWARD		.2465	37	.093	264	210	"	"

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.



Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass

EMERGENCY GENERATOR	400 FEET	
MAIN GENERATOR	250 FEET	MOTOR 35 FEET
EMERGENCY GENERATOR	395 FEET	
MAIN GENERATOR	245 FEET	MOTOR 30 FEET

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying 11 Ampères 15 feet from standard compass 10 feet from steering compass.

A cable carrying 12 Ampères 15 feet from standard compass 10 feet from steering compass.

A cable carrying 68 Ampères 15 feet from standard compass 10 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 N/L degrees on N/L course in the case of the standard compass, and N/L degrees on STEERING course in the case of the steering compass.

FOR WILLIAM BEARDMORE & CO. LIMITED.

W. Beameroy Builder's Signature.

Date

18/6/28.

Is this installation a duplicate of a previous case Yes.

If so, state name of vessel

Duchess Bedford.

General Remarks (State quality of workmanship, opinions as to class, &c.)

This installation has

*been fitted on board under special survey.
Tested under full load conditions &
found satisfactory.
The materials & workmanship were
found to be good and sound.*

It is submitted that
this vessel is eligible for
THE RECORD. Elec. Light.

3/7/28.

Total Capacity of Generators 1975 Kilowatts.

The amount of Fee ... £ 8017.6 :

When applied for,

13. 6. 1928

Travelling Expenses (if any) £ :

When received,

18. 6. 1928

J. Rankin
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 26 JUN 1928

Assigned

Elec Light



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Foundation