

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

APR 12 1938

Received at London Office

Date of Report

19

When handed in at Local Office

8 - 14 - 1938

Port of Belfast

No. in

Survey held at

Belfast

Date, First Survey

5th May 1937

Last Survey

1st April

1938

Reg. Book.

(Number of Visits.....)

22/82

on the

M.V. "Capetown Castle"

Tons

Gross 26850

Net 16500

Built at

Belfast

By whom built

Harland & Wolff Ltd.

Yard No.

986

When built

1938

Owners

Union Castle Steamship Co. Ltd.

Port belonging to

Electric Light Installation fitted by

Harland & Wolff Ltd.

Contract No.

986

When fitted

1938

Is the Vessel fitted for carrying Petroleum in bulk

No.

System of Distribution

Two Wire Direct Current

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

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

Yes

Have certificates for generators under 100 kw. been supplied and approved

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

Main generators in Aux. Motor Rm. Emerg. Gen. in Rm. 2 Deck

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

on Platform Forward in Auxiliary Motor

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 in same compartment

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes

Yes

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

is the non-hygroscopic insulating material of an approved

type

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. O/L. Reversing current circuit breaker with time limiters, tripping devices, interlocked equalizer switch for each generator. D.P. O/L. Circuit Breaker for each Out-going circuit

Are turbine driven generators fitted with emergency trip switch as per rule

Are cupboards or compartments containing switchboards composed of

5 Watt-hr. meters

fire-resisting material or lined with approved material

Yes

Instruments on main switchboard

4

ammeters 2

voltage meters arranged 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

Earth Indicating Lamps connected to Bus-bars by D.P. Switches, Circuit Breakers and Fusible Cut-outs, Switches & Fuses.

do these comply with the requirements of the Rules

Yes

are the fusible cut-outs of an approved type

Yes

have the reversed

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 9.4 volts (sprinkler pumps)

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 No if so, are they adequately protected Yes **Hard Rubber Waterproofing Cables**

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 Generally clipped to perforated steel plating except in U.S. Ball in Wood Gas in Rooms, etc.

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 In properly constructed insulated joint boxes.

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 Sheet Lead.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas All Metallic Portable Fittings & Apparatus Earthen Through separate conductor.

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 Emerg. Switchboard fitted in special bin and 2 D.C. Aft Distributing from Diesel Driven Emerg. Dynamo in same compartment

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 storerooms 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 None

where are the controlling switches situated None

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. 02 in Life boats 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, except are they protected from mechanical injury and damage from water, steam or oil Yes are their axes of rotation fore and aft Where vertical 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 None and None

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 fitted 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

MOTOR CONDUCTORS (CONTINUED)										
DESCRIPTION	NO. OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPS		APPROXIMATE LENGTH LEAD RETURN FEET	INSULATED WITH	HOW PROTECTED
		NO. PER POLE	TOTAL EFFECT AREA IN SQ. IN.	NO.	DIA.	IN CIRCUIT	RULE			
Compressors	3	1	1.0	12	0.93	594	595	14.0	Rubber	Hard Rubber
Brine Pumps 18 H.P.	3	1	0.06	19	0.64	70	83	150	"	"
" 10 "	2	1	0.0225	7	0.64	40	46	150	"	"
" 4 "	1	1	0.0045	7	0.29	16	18.2	150	"	"
Circulator Pumps	2	1	0.04	19	0.52	59	64	12.0	"	"
Motor Room Fans	4	1	0.20	37	0.83	158	184	18.0	"	"
Refrigerator Fans 20 H.P.	1	1	0.06	19	0.64	80	83	14.0	"	"
" 1 1/2 "	4	1	0.0225	7	0.64	42	46	18.0	"	"
" 8 1/2 "	3	1	0.0145	7	0.52	34	37	250	"	"
" 6 1/2 "	3	1	0.01	7	0.44	26	31	210	"	"
" 3 3/4 "	2	1	0.0045	7	0.29	16	18.2	300	"	"
" 3 1/4 "	2	1	0.0045	7	0.29	16	18.2	300	"	"
Hot water boilers	3	1	0.002	3	0.29	3	7.8	80	"	"
Ice cream Plant	1	1	0.0045	7	0.29	12	18.2	60	"	"
" Freezer "	1	1	0.002	3	0.29	3	7.8	60	"	"
Passenger Lift	1	1	0.01	7	0.44	25	31	240	"	Lead Covered
Garage	1	1	0.0145	7	0.52	30	37	120	"	Hard Rubber
Engines	1	1	0.0045	7	0.29	13	18.2	120	"	"
Galley	1	1	0.003	3	0.36	9	12	180	"	"
Rubbish Hoist	1	1	0.003	3	0.36	9	12	130	"	"
Overhead Crane	4	1	0.007	7	0.36	21	24	340	"	"
2-ton "	1	1	0.007	7	0.36	19	24	180	"	"
Oil Purifiers 3 H.P.	5	1	0.007	7	0.36	19	24	120	"	"
" 1 1/2 "	5	1	0.003	3	0.36	9	12	75	"	"
Dup. Lub. Oil Pumps	2	1	0.10	19	0.83	114	118	220	"	"
Dup. S.W. Circ. "	2	1	0.06	19	0.64	73	83	150	"	"
" F.W. "	2	1	0.0225	7	0.64	43	46	80	"	"
Sewage Pumps	2	1	0.075	19	0.72	84	97	400	"	"
Galley Extra Fan	2	1	0.01	7	0.44	26	31	180	"	"
Purified Fuel Oil Pump	1	1	0.04	19	0.52	47	64	120	"	"
Boiler Blowers	2	1	0.01	7	0.44	28	31	180	"	"
Galley	3	1	0.002	3	0.29	4	7.8	120	"	"
Colonial Units	4	1	0.002	3	0.29	3	7.8	60	"	"
Sprinkler Pumps	1	1	0.25	37	0.93	198	214	225	"	"
" Compressor	1	1	0.003	3	0.36	8.8	12	420	"	"
Hot S.W. Pumps	2	1	0.0145	7	0.52	32.5	37	90	"	"
Dup. Condenser Circ. Pump	1	1	0.0045	7	0.29	13	18.2	120	"	"
Boat Winches 15 H.P.	2	1	0.075	19	0.72	63	97	260	"	Lead Covered
" 12 "	1	1	0.03	19	0.44	62	53	180	"	Hard Rubber
" 10 "	13	1	0.0225	7	0.64	44	46	240	"	"
Washing M/C's	2	1	0.003	3	0.36	8	12	120	"	"
Wax M/C's	1	1	0.0045	7	0.29	13	18.2	180	"	"
Wax M/C's Fan	1	1	0.003	3	0.36	8	12	45	"	"
Hydro Extractor	1	1	0.0045	7	0.29	16	18.2	120	"	"
Collar M/C's	1	1	0.002	3	0.29	4	7.8	60	"	"
Gladiron	1	1	0.002	3	0.29	2	7.8	60	"	"
Propeller Fan	1	1	0.002	3	0.29	3	7.8	45	"	"
Ceiling Fans	3	1	0.002	3	0.29	0.5	7.8	80	"	"
Laugh M/C's	1	1	0.0045	7	0.29	13	18.2	100	"	"
Hobart " 1 H.P.	1	1	0.002	3	0.29	5	7.8	120	"	"
" 1 1/2 "	1	1	0.002	3	0.29	2	7.8	90	"	"
Coffee Mill	1	1	0.002	3	0.29	5	7.8	120	"	"
Painting M/C's	1	1	0.002	3	0.29	5	7.8	300	"	"
Canal Raising M/C's	1	1	0.002	3	0.29	2.5	7.8	160	"	U.S. Wood Casing
Horse "	1	1	0.002	3	0.29	5.6	7.8	150	"	"
Perussion "	1	1	0.002	3	0.29	6	7.8	130	"	"
Vert. Sliding Door Motor	2	1	0.0225	7	0.64	28	46	480	Rubber	Hard Rubber
Horizontal "	6	1	0.0225	7	0.64	23	46	860	"	"
L.P. Motor Generator	1	1	0.003	3	0.36	8	12	30	"	"
Lathe	1	1	0.002	3	0.29	6	7.8	60	"	"
Grinding M/C's	1	1	0.003	3	0.36	8	12	60	"	"
Drilling "	1	1	0.003	3	0.36	8	12	60	"	"
Shaping "	1	1	0.0045	7	0.29	16	18.2	60	"	"

NOTE :- ALL WIRING AND CABLES IN VICINITY OF WHEELHOUSE AND WIRELESS ROOM IN V.L.R. LEAD COVERED CABLES

015348-015354-0049 2/3

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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 ...	5	400	222	3150	260	Diesel engine		
AUXILIARY ...								
EMERGENCY ...	1	50	220	224	500	do.		
ROTARY TRANSFORMER								

GENERAL MOTOR, LIGHTING AND HEATING INDUSTRY.

[illegible]

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.			
Bilge and BALLAST PUMP	2	1	0.10	19	.083	60	118 ✓	90	Rubber	Hard Rubber
Main Bilge Line Pumps	1	1	0.15	37	.072	118	152 ✓	600	do	do
Saving Blowers GENERAL SERVICE PUMP	4	4	1.0	127	.103	2190	2380 ✓	225	do	do
EMERGENCY BILGE PUMP	1	1	0.15	37	.072	107	152 ✓	900	do	do
SANITARY PUMP	2	1	0.10	19	.083	107	118 ✓	120	do	do
CIRC. SEA WATER PUMPS	4	1	0.40	61	.093	264	288 ✓	150	do	do
CIRC. FRESH WATER PUMPS..	2	1	0.40	61	.093	264	288 ✓	120	do	do
AIR COMPRESSOR	3	1	0.75	91	.103	375	461 ✓	135	do	do
FRESH WATER PUMP ...	2	1	0.0145	7	.052	36	37 ✓	120	do	do
ENGINE TURNING GEAR... ..	2	1	0.10	19	.083	115	118 ✓	180	do	do
ENGINE REVERSING GEAR	5	1	0.003	3	.036	12	12 ✓	90	do	do
LUBRICATING OIL PUMPS	4	1	1.0	127	.103	530	595 ✓	280	do	do
OIL FUEL TRANSFER PUMP...	2	1	0.03	19	.044	47	53 ✓	120	do	do
WINDLASS	1	1	0.85	127	.093	665	680 ✓	180	do	do
WINCHES, FORWARD	2	1	0.12	37	.064	154	160 ✓	100	do	do
" " WARPING	1	1	0.75	91	.103	660	774 ✓	180	do	do
WINCHES, AFT	8	1	0.10	19	.083	117	142 ✓	250	do	do
bapstans aft.	2	1	0.85	127	.093	678	680 ✓	135	do	do
STEERING GEAR—										
(a) MOTOR GENERATOR...	2	1	0.30	37	.103	340	351 ✓	80	do	do
(b) MAIN MOTOR	2	1	0.30	37	.103	340	351 ✓	180	do	do
WORKSHOP MOTORS	4	1	0.0225	7	.064	15	46 ✓	270	do	do
VENTILATING FANS	2	1	0.002	3	.029	1	7.8 ✓	220	do	do
do	2	1	0.002	3	.029	1	7.8 ✓	160	do	do
do	1	1	0.002	3	.029	1	7.8 ✓	150	do	do
do	1	1	0.002	3	.029	1	7.8 ✓	130	do	do
do	1	1	0.002	3	.029	1	7.8 ✓	130	do	do
do	9	1	0.003	3	.036	10	12 ✓	225	do	do
do	9	1	0.0045	7	.029	13	18.2 ✓	230	do	do
do	9	1	0.007	7	.036	18	24 ✓	230	do	do
do	9	1	0.007	7	.036	21	24 ✓	210	do	do
do	3	1	0.01	7	.044	26	31 ✓	130	do	do
do	2	1	0.0145	7	.052	35.5	37 ✓	180	do	do
Tunnel Vent Fan	1	1	0.01	7	.044	28	31 ✓	180	do	do

NOTE :- ALL WIRING AND CABLES IN VICINITY OF WHEELHOUSE AND WIRELESS ROOM IN V.L.R. LEAD COVERED CABLES

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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.



Electrical Engineers.

Date

24/3/38

COMPASSES.

Minimum distance between electric generators or motors and standard compass 44 Feet from Fan K. motor

Minimum distance between electric generators or motors and steering compass 38 " " "

The nearest cables to the compasses are as follows:—

A cable carrying 30 Ampères 20 feet from standard compass 14 feet from steering compass.

A cable carrying 0.114 Ampères 8 feet from standard compass in feet from steering compass. Pedestal

A cable carrying 0.114 Ampères in feet from standard compass 8 feet from steering compass. Pedestal

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.



Builder's Signature.

Date

Is this installation a duplicate of a previous case Yes. If so, state name of vessel M.V. ATHLONE CASTLE.

General Remarks (State quality of workmanship, opinions as to class, &c. This installation has been fitted on)

board under special survey and in accordance with the approved plans and has been tested under full working conditions and found satisfactory.

The materials and workmanship have been found to be good and sound.

Noted
R.C.

13/4/38.

Total Capacity of Generators 3550 Kilowatts.

The amount of Fee £ 133 : 15 : 0 When applied for, 11. 4. 19 38
Belfast. £ 66-1-0
L.N. £ 66-1-0
Lon. £ 1-13-0
Travelling Expenses (if any) £ 1 : 10 : 0 When received, 21. 5. 19 38
L.N. 4/6. £ 23.5.

R.C. Clayton. Charles H. Hunter.
Surveyors to Lloyd's Register of Shipping.

Committee's Minute

FRI. 22 APR 1938

Assigned

See Bel. J.E. 12128



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