

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report... 9.4 Feb. 1946... When handed in at Local Office... 19... Port of... LIVERPOOL.

No. in Survey held at... BIRKENHEAD... Date, First Survey... 26/9/45... Last Survey... 8/21 1946... (Number of Visits... 12... Gross... 9913... Net...)

Reg. Book... on the... S.S. "CITY OF CARLISLE"

Built at... BIRKENHEAD... By whom built... CAMMELL LAIRD & CO. LTD... Yard No... 1156... When built... 1946

Owners... ELLERMAN & BUCKNALL STEAMSHIP CO. LTD... Port belonging to... LONDON.

Electrical Installation fitted by... CAMMELL LAIRD & CO. LTD... Contract No... 1156... When fitted... 1946

Is vessel fitted for carrying Petroleum in bulk... No... Is vessel equipped with D.F. YES... E.S.D. YES... Gy.C. YES... Sub.Sig. No

Have plans been submitted and approved... YES... System of Distribution... Two wire... Voltage of supply for Lighting... 220

Heating... 220... Power... 220... Direct or Alternating Current, Lighting... DC... Power... DC... If Alternating Current state periodicity... Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off... YES... Are turbine emergency governors fitted with a

trip switch as per Rule... YES... Generators, are they compound wound... YES... are they level compounded under working conditions... YES

if not compound wound state distance between generators... and from switchboard... Where more than one generator is fitted are they

arranged to run in parallel... YES... are shunt field regulators provided... YES... Is the compound winding connected to the negative or positive pole

negative... Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing... YES... Have certificates of

test for machines under 100 kw. been supplied... YES... and the results found as per rule... YES... Are the lubricating arrangements and the construction

of the generators as per rule... YES... Position of Generators... Main Generator on bottom platform in Engine Room, Aft.

Generators on platform... is the ventilation in way of generators satisfactory... YES... are they clear of inflammable material... YES... if situated

near unprotected combustible material state distance from same horizontally... and vertically... are the generators protected from mechanical

injury and damage from water, steam and oil... YES... are the bedplates and frames earthed... YES... and the prime movers and generators in metallic

contact... YES... Switchboards, where are main switchboards placed... In Engine Room on special platform.

are they in accessible positions, free from inflammable gases and acid fumes... YES... are they protected from mechanical injury and damage from water, steam

and oil... YES... if situated near unprotected combustible material state distance from same horizontally... and vertically... what insulation

material is used for the panels... Sindanyo... if of synthetic insulating material is it an Approved Type... YES... if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule... Is the frame effectually earthed... YES

Is the construction as per Rule... YES... including accessibility of parts... YES... absence of fuses on the back of the board... YES... individual fuses

to pilot and earth lamps, voltmeters, etc... YES... locking of screws and nuts... YES... labelling of apparatus and fuses... YES... fuses on the "dead"

side of switches... YES... Description of Main Switchgear for each generator and arrangement of equaliser switches... Triple pole circuit breakers

(one pole equalisers) fitted with overload and reverse current trips for each main generator;

Double pole circuit breakers for auxiliary generators.

and for each outgoing circuit... Double pole circuit breakers on double pole switch and fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES... Instruments on main switchboard... 11

ammeters... 4... voltmeters... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection... YES... Earth Testing, state means provided... Earth Lamps.

Switches, Circuit Breakers and Fuses, are they as per Rule... YES... are the fuses an approved type... YES... are all fuses labelled as

per Rule... YES... If circuit breakers are provided for the generators, at what overload current did they open when tested... 10% O/C... are the reversed current

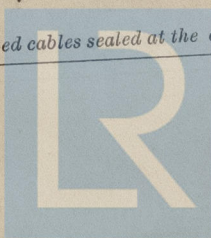
protection devices connected on the pole opposite to the equaliser connection... YES... have they been tested under working conditions, and at what current

did they operate... 10% O/C... Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule... YES

Cables, are they insulated and protected as per the appropriate Tables of the Rules... YES... if otherwise than as per Rule are they of an approved type...

state maximum fall of pressure between bus bars and any point under maximum load... 5.7 Volts... are the ends of all cables having a sectional area of 0.04

square inch and above provided with soldering sockets... YES... Are... varnished cambric insulated cables sealed at the ends... YES



with insulating compound. — or waterproof insulating tape. Yes. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage. Yes, are cables laid under machines or floorplates. Yes, if so, are they adequately protected. Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. — State how the cables are supported and protected. Main cables are lead covered clipped to steel plates on Days in Tween decks protected by steel covers. Machinery spaces are lead covered clipped to Days. Accommodation lead covered clipped to wood grounds or direct to structure of vessel.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. Yes.

Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. Yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed. Yes and with what material. Lead. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes. Emergency Supply, state position. None and method of control. —

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches. Yes and fuses. Yes. Are the switches and fuses in a position accessible only to the officers on watch. Yes, is an automatic indicator fitted. Yes. Secondary Batteries, are they constructed and fitted as per Rule. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. 2 batteries 12 volt 72 amp. hour. for the power, (bells and phones)

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. No, if so, how are they protected. —

and where are the controlling switches fitted. —, are all fittings suitably ventilated. Yes, are all fittings and accessories constructed and installed as per Rule. Yes. Searchlight Lamps, No. of 3 being only for one, whether fixed or portable. portable, are their fittings as per Rule. — Heating and Cooking, is the general construction as per Rule. Yes, are the frames effectually earthed. Yes, are heaters in the accommodation of the convection type. Yes. Motors, are all motors constructed and installed as per Rule. Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. Yes, if situated near unprotected combustible material state minimum distance from same horizontally. — and vertically. — Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment. Yes. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. — Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. Yes. Control Gear and Resistances, are they constructed and fitted as per Rule. Yes. Lightning Conductors, where required are they fitted as per Rule. Not required. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with. —, are all fuses of the cartridge type. — are they of an approved type. — Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. — Are the cables lead covered as per Rule. — Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yes, are they suitably stored in dry situations. Yes. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. Yes.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	R.P.M.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3. ✓	175 ✓	220 ✓	795 ✓	600 ✓	Oil Engines.	Dual Oil	Below 150° F
AUXILIARY	1 ✓	10 ✓	220 ✓	45.5 ✓	1000 ✓	"	"	"
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	175	2	6/1093	795	928	80	V.C.	Lead covered.
" " EQUALISER ...	-	1	6/1093	-	464	40	"	"
AUXILIARY GENERATOR	10	1	7/1064	45.5	75	50	"	"
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...							
AFT RING MAIN 'A'	2.	7/1083	250	392 ✓		V.C.	L.C.
MIDSHIP RING MAIN 'B'	2	7/1083	250	392 ✓		"	"
FORWARD RING MAIN 'C'	2	7/1083	278	392 ✓		"	"
MIDSHIP LIGHTING SECTION BOARD S2.	1	7/1064	120	135 ✓	100	"	"
" POWER " " S1.	1	7/1064	45	75 ✓	100	"	"
GALLEY GEAR " " S3.	1	7/1064	120	135 ✓	120	"	"
AFT " " S4.	1	7/1064	82.5	135 ✓	450	"	"
LIGHTING CABLES.							
ENGINE ROOM LIGHTING PORT D 21.	1	7/1029	10	15 ✓	140	V.I.R.	L.C.
" " " STARBOARD D20.	1	7/1029	10	15 ✓	30	V.I.R.	"
" " " STARBOARD D22.	1	7/1029	10	15 ✓	30	V.I.R.	"
SEARCHLIGHT. (WIRING ONLY)	1	7/1064	-	75 ✓	600	V.C.	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	1	7/1064	35	75 ✓	240	V.C.	L.C.
NAVIGATION LIGHTS MAIN ALTERNATIVE } D1.	1	7/1029	1	10 ✓	180	V.I.R.	"
LIGHTING AND HEATING BRIDGE ... D2.	1	7/1044	10	42 ✓	180	V.C.	"
CAPTAIN'S ACCOMMODATION D3.	1	7/1029	11	15 ✓	160	V.I.R.	"
PROHOMADE DECK LIGHTING STARBOARD D4	1	7/1044	9	42 ✓	140	V.C.	"
" " " PORT MID D5	1	7/1029	9	15 ✓	140	V.I.R.	"
" " " STARBOARD MID D6.	1	7/1044	5.5	42 ✓	90	V.C.	"
" " " PORT AFT D7	1	7/1029	6.5	15 ✓	70	V.I.R.	"
ENGINEERS ACCOMMODATION LIGHTING STARBOARD D8	1	7/1044	14	42 ✓	60	V.C.	"
" " " PORT " D3	1	7/1044	6	42 ✓	120	"	"
" " " STARBOARD D4	1	7/1044	25	42 ✓	30	"	"
" " " PORT " D5.	1	7/1044	14.7	42 ✓	60	"	"
FORECASTLE LIGHTING D8.	1	7/1044	2.6	42 ✓	560	"	"
FORWARD CARGO LIGHTING D. 9, 10, 15.	1	7/1064	27	75 ✓	450	"	"
MIDSHIP " " D16	1	7/1029	13	15 ✓	30	V.I.R.	"
AFT " " D17	1	7/1029	10	15 ✓	180	"	"
AFT ACCOMMODATION LIGHTING STARBOARD D18	1	7/1029	12	15 ✓	40	"	"
" " " PORT D19	1	7/1029	12	15 ✓	30	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
FORCED DRAUGHT FANS	2	25	1	7/1064	100	135 ✓	100	V.C	L.C.
ENGINE ROOM VENT FANS	2	4	1	7/1044	17.5	42 ✓	150	"	"
DOMESTIC F.W. PUMP.	1	4	1	7/1044	17.5	42 ✓	100	"	"
LUBRICATING OIL PUMPS	2	14	1	7/1064	58	75 ✓	60	"	"
CONDENSATE EXTRACTION PUMPS	2	18.5	1	7/1064	56	75 ✓	80	"	"
DIESEL ENG. CIRCULATING PUMPS	2	7	1	7/1064	30	75 ✓	40	"	"
OIL FUEL PRESSURE PUMPS	2	3.5	1	7/1029	16	15 ✓	40	V.I.R	"
BALLAST PUMP	1	34	1	7/1064	134	135 ✓	120	V.C.	"
GENERAL SERVICE PUMP	1	11	1	7/1064	47	75 ✓	120	"	"
FIRE AND BILGE PUMP	1	24	1	7/1064	95	135 ✓	120	"	"
OIL FUEL TRANSFER PUMP	1	13	1	7/1064	62	75 ✓	120	"	"
DIESEL OIL TRANSFER PUMP	1	1.25	1	7/1029	6.5	15 ✓	40	V.I.R	"
TURNING MOTOR	1	8	1	7/1044	33.5	42 ✓	100	V.C	"
LUBRICATING OIL PURIFIER MOTORS	2	2	1	7/1029	8.6	15 ✓	80	V.I.R	"
DIESEL OIL " " "	2	0.5	1	7/1029	3	15 ✓	30	"	"
WORKSHOP MOTOR	1	5	1	7/1044	21.5	42 ✓	150	V.C.	"
OIL FUEL BLOWER MOTOR	1	2.5	1	7/1029	11.2	15 ✓	100	V.I.R	"
SANITARY PUMP	1	4	1	7/1044	17.5	42 ✓	100	V.C	"
STEERING GEAR MOTORS	2	35	1	7/1064	134	135 ✓	300	"	"
WINDLASS	1	53	1	7/1083	203	191 ✓	60	"	"
FORWARD WINCHES	6	30	1	7/1064	125	135 ✓	90	"	"
MIDSHIP FORWARD WINCHES	6	30	1	7/1064	125	135 ✓	90	"	"
MIDSHIP AFT WINCHES	2	30	1	7/1064	125	135 ✓	90	"	"
AFT WINCHES	4	30	1	7/1064	125	135 ✓	90	"	"
WARPING WINCH	1	30	1	7/1064	125	135 ✓	200	"	"
RADAR M266	1	-	1	7/1064	21	75 ✓	240	"	"
GYRO COMPASSES	1	-	1	7/1044	-	42 ✓	140	"	"
REFRIG. PLANT	1	5	1	7/1044	23	42 ✓	80	"	"

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The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description FOR AND ON BEHALF OF
Cammell Laird & Co. Limited.

Electrical Engineers. Date 12 FEB 1946

MANAGER

COMPASSES.

Minimum distance between electric generators or motors and standard compass 94 ft.

Minimum distance between electric generators or motors and steering compass 88 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 8 feet from standard compass 6 feet from steering compass.

A cable carrying 0.1 Ampères 10 feet from standard compass 12 ft. 6 in. from steering compass.

A cable carrying 0.1 Ampères 12 ft. 6 in. from standard compass 5 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 any course in the case of the

standard compass, and Nil degrees on any course in the case of the steering compass.

FOR AND ON BEHALF OF
Cammell Laird & Co. Limited.

Builder's Signature. Date 12 FEB 1946

MANAGER.

Is this installation a duplicate of a previous case. No If so, state name of vessel —

Plans. Are approved plans forwarded herewith Yes If not, state date of approval —

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith Yes.

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) The electrical

equipment of this vessel has been installed on board under special survey and in accordance with the approved plans & Rule requirements. The installation has been tested under full working conditions and found satisfactory. The materials and workmanship are good.

Notes

Run 11.3.46

Total Capacity of Generators 535 Kilowatts.

The amount of Fee £ 58 : 7 - 6
4/5 due LIVERPOOL £ 46 : 14 : 0
1/5 due SUNDERLAND 11 : 13 : 6

When applied for, 20 FEB 1946

Travelling Expenses (if any) £ : : When received, 19

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned See Minute on Liverpool H. Machinery Report.



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