

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office..... FEB 1946

Date of writing Report... 9th 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) Tons { Gross... 9913 Net... }

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 series 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, Aux. Generator on platform

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 equaliser) 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... YES,

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

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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 Decks in Tween Decks protected by steel covers. Machinery spaces are lead covered clipped to Decks. Accommodation lead covered clipped to wood grounds or disintegrated structure of wood.

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 low 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 low power, (bells wireless)

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 3 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.	Amps.	R.P.M.		Fuel Used.	Flash Point of Fuel.
MAIN	3	175	220	795	600	Oil Engines.	Dual Oil	60 to 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	924	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	1	7/1029	1	10	180	V.I.R.	"
LIGHTING AND HEATING BRIDGE	22	7/1044	10	42	180	V.C.	"
CAPTAIN'S ACCOMMODATION	D3	7/1029	11	15	160	V.I.R.	"
PROMENADE DECK LIGHTING STARBOARD	D4	7/1044	9	42	140	V.C.	"
" " " PORT MID	D5	7/1029	9	15	140	V.I.R.	"
" " " STARBOARD MID	D6	7/1044	5.5	42	90	V.C.	"
" " " PORT AFT	D7	7/1029	6.5	15	70	V.I.R.	"
ENGINEERS ACCOMMODATION LIGHTING STARBOARD	DA	7/1044	14	42	60	V.C.	"
" " " PORT "	DB	7/1044	6	42	120	"	"
" " " STARBOARD AFT	DC	7/1044	25	42	30	"	"
" " " PORT "	DD	7/1044	14.7	42	60	"	"
FORECASTLE LIGHTING	D8	7/1044	2.6	42	560	"	"
FORWARD CARGO LIGHTING D. 9, 10, 15		7/1064	27	75	450	"	"
MIDSHIP " " D16		7/1029	13	15	30	V.I.R.	"
AFT " " D17		7/1029	10	15	180	"	"
AFT ACCOMMODATION LIGHTING STARBOARD	D18	7/1029	12	15	40	"	"
" " " PORT D19		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	" "
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 M264	1	-	1	7/1064	21	75	240	" "
GYRO COMPASS	1	-	1	7/1044	-	42	140	" "
REFRIG. PLANT	1	5	1	7/1044	23	42	80	" "

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
CAMELL LAIRD & CO. LIMITED.

John

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 led into feet from steering compass.

A cable carrying 0.1 Ampères led into feet 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.

CAMELL LAIRD & CO. LIMITED.

John

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

A. Stappert

Surveyor to Lloyd's Register of Shipping.

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

Committee's Minute LIVERPOOL 26 FEB 1946

Assigned See Minute on Liverpool H. Machinery Report.

5111.4.39.—Transfer. (MADE AND PRINTED IN ENGLAND.)
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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