Rpt. 13.

No. 16915

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

OCT 29 1940
Received at London Office

Date of writing Report 15th Oct., 1940 When handed in at Local Office 25-10-1940 Port of Middlesbrough

No. in Reg. Book. Survey held at Hartlepool Date, First Survey 7th Aug., Last Survey 14th Oct., 1940 (Number of Visits 8)

on the Lifting Camel "L.C.11" (T.4224) Tons Gross 918 Net 814

Built at Hartlepool By whom built Furness S.B. Co. Ltd. Yard No. 337 When built 1940

Owners The Admiralty Port belonging to Hartlepool

Electrical Installation fitted by Furness S.B. Co. Ltd. (Mus. Dept.) Contract No. 337 When fitted 1940

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

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Have plans been submitted and approved Yes System of Distribution Double wire Voltage of supply for Lighting 220/225

Heating — Power — Direct ~~or Alternating~~ Current, Lighting Yes Power — If Alternating Current state frequency — Prime Movers, has the governing been tested and found efficient when the whole load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a trip switch as per Rule — 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 —, 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 — 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 Machinery space port side on raised flat, 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 Machinery space port side adjunct to generating set

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 Matt finish "Linoxyn", 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 Double pole knife switch and double pole fuse

and for each outgoing circuit Double pole knife switch and double pole fuse

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes. Instruments on main switchboard One ammeters One voltmeters — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection —. Earth Testing, state means provided E lamps coupled to E through SWS. & fuses

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, are the reversed current protection devices connected on the pole opposite to the equaliser connection —, have they been tested under working conditions —. **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 4 Volts, are the ends of all cables having a sectional area of 0·04 square inch and above provided with soldering sockets Yes. Are paper insulated and varnished cambric insulated cables sealed at the exposed 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 Cables in machining spaces and subways generally - L.C.A.B. Cables in accommodation spaces - L.C.B. Cables clipped to trays or runs clipped on wood grounds.

Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes. Refrigerated chambers, are the cables and fittings as per Rule —. 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 — and method of control —. Bow lights and stern light fitted fed from local D.Bs. **Navigation Lamps,** are they separately wired Yes controlled by separate double pole switches — and fuses —. Are the switches and fuses in a position accessible only to the officers on watch —, is an automatic indicator fitted Yes. **Secondary Batteries,** are they constructed and fitted as per Rule —, are they adequately ventilated — **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 —, whether fixed or portable —, are their fittings as per Rule —. **Heating and Cooking,** is the general construction as per Rule —, are the frames effectually earthed —, are heaters in the accommodation of the convection type —. **Motors,** are all motors constructed and installed as per Rule — and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil —, if situated near unprotected combustible material state minimum distance from same horizontally — and vertically —

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 —. **Control Gear and Resistances,** are they constructed and fitted as per Rule —. **Lightning Conductors,** where required are they fitted as per Rule —. **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 —. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type —. **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 megger tested and found satisfactory Yes.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	1	6	220/225	27.3	650	Single cylinder		
D/G.	1	1½	3	500	650	Steam engine		
	Generators coupled in tandem							
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS. No. in Parallel Per Pole.	CONDUCTORS. Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES. In the Circuit.	MAXIMUM CURRENT IN AMPERES. Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
MAIN GENERATOR	6	1	7/.044	27.3	31	20	V.I.R.	L.C.A.B.
" " EQUALISER								
DEGAUSSING GENERATOR	1·5	1	9/.103	500	738	20	V.C.	L.C.B. No
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS							

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS							
NAVIGATION LIGHTS							
LIGHTING AND HEATING							
Forward Lighting D.B.	1	7/.044	11·5	31	64	V.I.R.	L.C.A.B.
Aft Lighting D.B.	1	7/.044	11·0	31	84	V.I.R.	L.C.A.B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
No motors fitted									

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.

P. L. Gibson ..... *Electrical Engineer.* *Date* 23-10-40

COMPASSES.

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

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

The nearest cables to the compasses are as follows:—

A cable carrying ..... *Ampères* ..... *feet from standard compass* ..... *feet from steering compass.*

A cable carrying ..... *Ampères* ..... *feet from standard compass* ..... *feet from steering compass.*

A cable carrying ..... *Ampères* ..... *feet from standard compass* ..... *feet from steering compass.*

Have the compasses been adjusted with and without the electric installation at work at full power .....

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted .....

The maximum deviation due to electric currents was found to be ..... *degrees on* ..... *course in the case of the standard compass, and* ..... *degrees on* ..... *course in the case of the steering compass.*

No compass fitted

..... *Builder's Signature.* *Date* .....

Is this installation a duplicate of a previous case Yes *If so, state name of vessel* Lifting Camel "L.C. 10"

General Remarks *(State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)* The electrical equipment of this lifting camel has been erected in accordance with approved plans and with the Specification. The materials used are of good quality and the workmanship is good. On completion the equipment was run under working conditions with satisfactory results, the insulation resistance of all circuits was measured and the spare gear was examined.

The equipment is in my opinion suitable for a vessel holding the Special class.

Noted
L.Y.
30/10/40.

Total Capacity of Generators 6 *Kilowatts.*

The amount of Fee ... ... £ 12 : – : (Including Specification.)

Travelling Expenses (if any) £ : :

When applied for, 25-10-1940

When received. ..... 19.....

Stenhouse
Surveyor to Lloyd's Register of Shipping.

Committee's Minute .....

Assigned See Mdk. FE 16914

Jno. M. Rowntree

2m.10.38.—**Transfer.** (MADE IN ENGLAND.)

(The Surveyors are requested not to write on or below the space for Committee's Minute.)