

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

9 OCT 1946

Received at London Office

Date of writing Report 14th Sept 1946 When handed in at Local Office 1946 Port of Liverpool

No. in Survey held at Liverpool & Birkenhead Date, First Survey 25/4/46 Last Survey 17/9/1946  
Reg. Book. (Number of Visits 8)

76204 on the S.S. 'JOHN HOLT' Tons { Gross 3818  
Net           

Built at Birkenhead By whom built Cammell Laird & Co Ltd Yard No. 1171 When built 1946

Owners John Holt & Co. Port belonging to Liverpool

Electrical Installation fitted by Cammell Laird & Co Ltd Contract No. 1171 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. No Sub.Sig. No

Have plans been submitted and approved Yes System of Distribution Varies with Voltage of supply for Lighting 220

Heating 220 Power 220 Direct or Alternating Current, Lighting DC Power DC 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 No, 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 In Engine Room on Generator 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 In Engine Room adjacent to generator

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 Slate

if of synthetic insulating material is it an Approved Type           , if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule Yes 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 switch

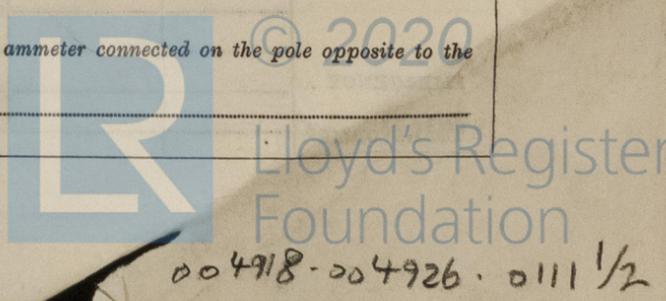
fuses

and for each outgoing circuit Double-pole switch and fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 2

ammeters 2 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 Lead 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, 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 Yes, state maximum fall of pressure between bus bars and any point under maximum load 6-1/2 lbs. per sq. in., 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 —. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes, or run in conduit —. State how the cables are supported and protected mainly clipped to steel beams on plate with protecting covers, Accommodation - cables clipped to bulkheads or decks protected as necessary, Machinery spaces, cables clipped to steel beams on deck to steelwork.

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. 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 Yes, 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 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 —. 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 Yes. 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				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	17 1/2	220	79.5	450	Steam Engines.		
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 GENERATORS ... (2)	17 1/2	1	19/064	79.5	135	60	V.C.	L.C.B.
" " EQUALISER ...								
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR ...								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
AFT LIGHTING: S.B.	5.1	1	7/064	23.8	46	100	R.N.N.	H.R.B.
" POWER S.B.	5.2	1	7/064	39.7	46	100	"	"
FORW. POWER S.B.	5.3	1	7/064	24	46	110	"	"
" LIGHTING S.B.	5.4	1	14/064	69.9	135	210	V.C.	L.C.B.
ENG. ROOM S.B.	5.5	1	7/064	28.6	75	40	"	"
SHORE CONNECTION BOX.		1	19/064	80	135	110	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...		1	7/064	20	46	290	R.N.N.	H.R.B.
NAVIGATION LIGHTS MAIN ...		1	3/336	1	10	290	"	"
NAVIGATION LIGHTS ALTERNATIVE ...		1	3/336	1	10	290	"	"
LIGHTING AND HEATING BRIDGE LIGHTING DB2		1	7/044	10	31	80	"	"
CAPTAIN'S ACC. LIGHTING DB2		1	7/044	10	31	80	"	"
FORWARD CARGO LIGHTING DB12		1	19/064	22	135	240	V.C.	L.C.B.
AFT " " DB13		1	7/044	19	31	120	R.N.N.	H.R.B.
ENG. ROOM LIGHTING PORT. DB14		1	7/044	13	31	100	V.I.R.	L.C.B.
" " " STAR. DB15		1	7/044	13	31	40	"	"
COOK'S ACC. LIGHTING DB10		1	7/029	8	15	80	"	"
AFT ACC. LIGHTING DB11		1	7/029	9.8	15	200	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
ENG. ROOM VENTILATING FAN	1	2.5	1	7/029	11	15	140	V.I.R.
LUB. OIL PURIFIER	1	0.5	1	3/336	2.6	10	80	"

Switches, ~~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 Yes, state maximum fall of pressure between bus bars and any point under maximum load 6-1/2 lbs. per sq. in. 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 —. Are cables in machinery spaces, galleys, laundries, etc., lead covered Lead, or run in conduit —. State how the cables are supported and protected Main clipped to steel to eye on plate with protecting cover, Accommodation - cables clipped to bulkheads or decks protected as necessary. Machinery spaces, cables clipped to steel ways as desired to steelwork.

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 —.

Minimum distance between electric generators or motors and steering compass 12 ft.  
 The nearest cables to the compasses are as follows:—  
 A cable carrying 100 Amps feet from standard compass 12 feet from steering compass.  
 A cable carrying 100 Amps feet from standard compass 12 feet from steering compass.  
 installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present Yes, 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 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 —. 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 Yes. 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				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	17 1/2	220	79.5	450	Steam Engines.		
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 S ... (2)	17 1/2	1	19/064	79.5	135	60	V.C.	L.C.B.
" " EQUALISEE ...								
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR ...								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
AFT LIGHTING S.B.	S.1	1	7/064	23.8	46	100	Synthetic Rubber	R.M.
" POWER S.B.	S.2	1	7/064	39.7	46	100		L.C.B.
FORW. POWER S.B.	S.3	1	7/064	24	46	110		"
" LIGHTING S.B.	S.4	1	19/064	69.9	135	210		V.C.
ENG. ROOM S.B.	S.5	1	7/064	28.6	75	40		L.C.B.
SHORE CONNECTION BOX		1	19/064	80	135	110		"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...		1	7/064	20	46	290		R.M.
NAVIGATION LIGHTS MAIN ...		1	3/036	1	10	290		L.C.B.
NAVIGATION LIGHTS ALTERNATIVE ...		1	3/036	1	10	290		"
LIGHTING AND HEATING BOAT LIGHTING DB1		1	7/044	10	31	80		"
CAPTAIN'S ACC. LIGHTING DB2		1	3/036	7	10	40		"
PASSENGERS' & ENGINEER'S ACC. LTR DB3		1	7/044	9	31	24		"
PANTRY & STORES LIGHTING DB4		1	7/029	6	15	20		"
SALOON LIGHTING DB5		1	7/044	9	31	20		"
STEWARDS' ACC. LIGHTING DB6		1	7/029	6	15	40		"
FORECASTLE LIGHTING DB7		1	7/029	10	15	200		"
MESS ROOM LIGHTING DB8		1	7/029	8	15	80		"
COOKS' ACC. LIGHTING DB9		1	7/029	6	15	40		"
AFT ACC. LIGHTING DB10		1	7/029	9.8	15	200		"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
ENG. ROOM VENTILATING FAN	1	2.5	1	7/029	11	15	140	V.I.R.
LUB. OIL PURIFIER	1	0.5	1	3/036	2.6	10	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.

*J. Williams*



Electrical Engineers.

Date

COMPASSES.

Minimum distance between electric generators ~~or motors~~ and standard compass..... 136 ft

Minimum distance between electric generators ~~or motors~~ and steering compass..... 125 ft

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 9 feet from standard compass 7 feet from steering compass.

A cable carrying 0.1 Ampères ~~detent~~ feet from standard compass 8 feet from steering compass.

A cable carrying 0.1 Ampères 10 feet from standard compass ~~detent~~ 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 1/2 degrees on any course in the case of the standard compass, and 1/2 degrees on any course in the case of the steering compass.

FOR AND ON BEHALF OF CAMMELL LAIRD & Co. LIMITED

Builder's Signature

Date 28 SEP 1946

DIRECTOR

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

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 under special survey in accordance with the Rules and approved plans. The installation has been tested under full working conditions & found satisfactory. The materials and workmanship are good.*

*Noted Here 23.10.46*

Total Capacity of Generators 35 Kilowatts.

The amount of Fee ... £ 23 : 15 : 0

When applied for, 30/9/46

Travelling Expenses (if any) £

When received.

*H. Hoffman*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

LIVERPOOL 28 OCT 1946

Assigned

*See Minute on Liverpool S.E. Machinery Report.*



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2m.10.38.—Transfer. (MADE IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)