

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No. 92792

10 AUG 1935

Date of writing Report 19 When handed in at Local Office 9/8/35 Port of Newcastle-on-Tyne
Date, First Survey 4 March Last Survey 19 July 1935
(Number of Visits 7)

Survey held at Reg. Book. on the S.S. "DUMFRIES."
Built at Hebburn. By whom built Hawthorn Leslie & Co. Ltd. Yard No. 595 Tons { Gross Net
When built 1935
Owners B. J. Sutherland & Co. Ltd. Port belonging to
Electric Light Installation fitted by Hawthorn, Leslie & Co. Ltd. Contract No. 595 When fitted 1935
The Vessel fitted for carrying Petroleum in bulk

System of Distribution Double Wire
Pressure of supply for Lighting 110 volts, Heating - volts, Power 110 volts.
Direct or Alternating Current, Lighting Direct Power Direct
alternating current system, state frequency of periods per second

As 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 - 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 proved yes
Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing -

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 Engine Room Starboard Side, is the ventilation way of the generators satisfactory yes
Are they clear of all inflammable material yes if situated near unprotected

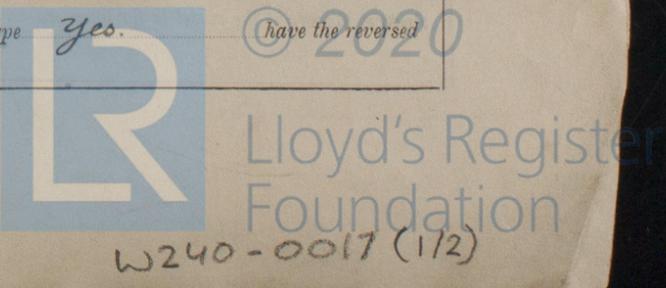
woodwork or other combustible material, state distance of same horizontally from or vertically above the generators - and -
Are the generators protected from mechanical injury and damage from water, steam or oil yes, are their axes of rotation fore and aft yes
Earthing, are the bedplates and frames of the generating plant efficiently earthed yes, are the prime movers and their respective generators metallic contact yes
Main Switch Boards, where placed Engine Room Starboard Side

If the generators and main switchboard are not placed in the same compartment, is each generator provided with fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard -
Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes yes, are they protected from mechanical 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 yes, is the non-hygroscopic insulating material of an approved type yes, and is the frame effectively earthed 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
Double Pole Switch and Fuses for Generator, Single Pole Switches and Double Pole Fuses for each Outgoing Circuit.

Are turbine driven generators fitted with emergency trip switch as per rule - Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material - Instruments on main switchboard 1 ammeter 1 voltmeter - synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system
Earth lamps coupled to Earth through fuses. Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes, are the fusible cutouts of an approved type yes, (Have the reversed)



W240-0017 (1/2)

current protection devices been tested under working conditions 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 or XI of the Rules yes.

If the cables are insulated otherwise than as per Rule, are they of an approved type —. **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load 3 volts.

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 —, or waterproof insulating tape —. **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 in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit Lead covered

Support and Protection of Cables, state how the cables are supported and protected Run in galvanised iron pipe in holds, Brass clips + screws for lead covered cables in Accommodation, Galvanised iron clips + brass screws for lead covered + armoured cables in Engine + Boiler Rooms.

If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves —. 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 —

Joints in Cables, state if any, and how made, insulated, and protected None made

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 Lead

Earthing Connections, state what earthing connections are fitted and their respective sectional areas —

—, are their connections made as per Rule —

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 —

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 —

Fittings, are all fittings on weather decks, in stokeholds 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 —

—, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected No

—, how are the cables led —

where are the controlling switches situated —

are all fittings suitably ventilated —, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials —

Heating and Cooking Appliances, are they constructed and fitted as per Rule —, are air heaters constructed and fitted as per Rule —

Searchlight Lamps, No. of —, whether fixed or portable —, are their fittings as per Rule —

Arc Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —

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, are they protected from mechanical injury and damage from water, steam or oil yes, are their axes of rotation fore and aft yes, 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 —, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing —. **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 —

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 —, are all fuses of the filled 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 type approved by the Home Office —

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule yes.

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	1	12 1/2	110	114	375	Steam Engine.		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	0.1000	19	.083	103.6	118		V. J. R.	Lead covered + armoured.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	0.0045	7	.029	15	18.2	50	V. J. R.	Lead covered + Armoured.
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION Engineers + Res.	1	0.0225	7	.064	26	46	140	V. J. R.	Galvanised iron pipe
" Officers	1	0.0225	7	.064	25.6	46	399	"	" " "
WIRELESS	1	0.0100	7	.044	16	31	480	"	" " "
SEARCHLIGHT									
MASTHEAD LIGHT	1	0.0020	3	.029	.37	7.8	360	"	Lead covered + V. J. R. in galvanised iron pipe
SIDE LIGHTS	1	0.0020	3	.029	.37	7.8	60	"	Lead covered.
COMPASS LIGHTS	1	0.0020	3	.029	.14	7.8	20	"	" "
POOP LIGHTS									
CARGO LIGHTS	1	0.0030	3	.036	2.7	12.0	40	"	Galvanised iron pipe
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
Refrigerating Compressor Motor	1	1	0.0145	7	.052	21	37	390	V. J. R.	Galvanised iron pipe
" Water Pump Motor	1	1	0.0145	7	.052	7.5	37	390	"	" " "

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

FOR R. & W. HAWTHORN, LESLIE & Co., LIMITED,

R. W. Hawthorn

Electrical Engineers.

Date 8/8/35

COMPASSES.

Distance between electric generators or motors and standard compass 40 feet

Distance between electric generators or motors and steering compass 35 feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.14 Ampères 7 feet from standard compass on the feet from steering compass.

A cable carrying 0.14 Ampères on the feet from standard compass 7 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 Yes

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 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.

FOR R. & W. HAWTHORN, LESLIE & Co., LIMITED,

R. W. Hawthorn

Builder's Signature.

Date 8/8/35

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

General Remarks (State quality of workmanship, opinions as to class, &c. The above instⁿ has been fitted out under special survey. + on completion was tested under working conditions + found satisfactory. The insulation resistance is good. The vessel is eligible in my opinion for notation D.F.

Noted
12/8/35

Total Capacity of Generators 12 1/2 Kilowatts.

The amount of Fee ... £ 13 :- : 31.7.35
When applied for,
Travelling Expenses (if any) £ : : 3.8.35
When received.

W. T. Badger
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 13 AUG 1935

Assigned See J.C. Rpt.

2m. E. 34. — Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute



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