

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

5 FEB 1937

Date of writing Report 25th Jan'y. 1937. When handed in at Local Office 3. 2. 1937 Port of Glasgow.

No. in Survey held at Clydebank.
Reg. Book.Date, First Survey 18. 11. 36 Last Survey 10 - 2 - 1937
(Number of Visits 11)

go 187. on the T.S.M.V. "SUSSEX."

Tons { Gross 11063
Net 6516

Built at Clydebank. By whom built John Brown & Co. Ltd Yard No. 546 When built 1937

Owners P. & O. Steam Nav. Co. Ltd Port belonging to London.

Electric Light Installation fitted by John Brown & Co. Ltd Contract No. 646 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk ho.

System of Distribution Two wires

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct

If alternating current system, state frequency of periods per second —

Has 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 Yes, 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

approved Yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes.

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 Main Engine Room - bottom platform. is the ventilation

in 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

in metallic contact Yes Main Switch Boards, where placed Main Engine Room - switchboard flat.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard Yes

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 ho. are all screws and nuts securing connections effectively locked Yes are any fuses fitted on the live side of

switches ho. Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

Triple pole circuit breakers (one pole equalizer) with 1/2" x 1/2" trips for each generator, D.P. 1/2" circuit breakers as
D.P. switch & fuses for each outgoing circuit. Are cupboards or compartments containing switchboards composed of

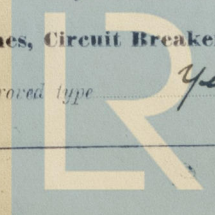
fire-resisting material or lined with approved material Yes Instruments on main switchboard 19 ammeters 3.

voltage meters — synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Yes Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Board Lamps. 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



© 2020
Lloyd's Register
Foundation

002947-002955-0269 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, ~~or multicore~~ *Yes* 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 *6.5 Volts*

any point of the installation under maximum load *Yes* 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 *Yes.* 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 *Yes.*

Support and Protection of Cables, state how the cables are supported and protected *Main L.C.B. or L.C.B. run in steel boughing on deck, blacky space; L.C.B. or L.C.B. supported by steel stay or clipped direct to steelwork. Accommodation: L.C.B. clipped to steel woodwork.*

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 *Yes.*

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

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 *Lead covering and armoring of cables bonded sealed by means of clips or special bonding glands.*

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 *Yes*

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 *No.*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *—* how are the cables led *—*

where are the controlling switches situated *—*

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

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

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

Are 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 where possible* situated near unprotected woodwork or other combustible material, are the motors of the latently enclosed, pipe ventilated, forced draught, drip or flame proof type *Yes*

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 *Yes.* 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	4	300	220	1365	400	Diesel Engine (See Appendix)	Diesel Oil.	Above 150°F	
AUXILIARY	1	150	220	682	450	Steam Engine (See Appendix)			
EMERGENCY									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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	2	1.70	127	.093	1365	1466	180	Vam. Cambria	L.C.B.
EQUALISER CONNECTIONS	1	.85	127	.093	—	733	90	"	"
AUXILIARY GENERATOR	1	.85	127	.093	682	733	216	"	"
EMERGENCY GENERATOR	1	.30	37	.103	—	346	108	"	"
ROTARY TRANSFORMER									
ENGINE ROOM	1	.01	7	.044	16.3	31	144	Rubber.	L.C.A.B.
ENGINE ROOM	1	.01	7	.044	18.6	31	180	"	"
ENGINE ROOM	1	.003	3	.036	4.7	12	120	"	"
AUXILIARY SWITCHBOARDS									
SHORE CONNECTION	1	.30	37	.103	346	346	148	V.C.	L.C.B.
GALLEY SWITCHBOARD	2	.40	37	.083	441.7	532	348	"	"
REFRIGERATOR SWITCHBOARD	3	3.00	127	.103	2798	3270 (Horse)	270	"	L.C.A.B.
FOR WINCH WINDLASS RING	1	.40	61	.093	815	834	2040	"	"
AFT WINCH RING.	1	.40	61	.093	660	834	1386	"	"
ACCOMMODATION									
LIGHTING FANS	1	.06	19	.064	81.9	122	300	"	L.C.B.
NAVIGATION	1	.0045	7	.029	5.6	18.2	390	Rubber	"
ACC. Ltg. BATTERY SUPPLY									
(Mains to B/I)	1	.01	7	.044	19.8	31	90	"	"
WIRELESS	1	.007	7	.036	15	24	360	"	"
SEARCHLIGHT	1	.0225	7	.064	40	46	84	"	L.C.A.B.
MASTHEAD LIGHT	1	.002	3	.029	.18	7.8	600	"	L.C.B.
SIDE LIGHTS	1	.002	3	.029	.18	7.8	120	"	"
COMPASS LIGHTS	1	.002	3	.029	.10	7.8	40	"	"
POOP LIGHTS									
CARGO LIGHTS	1	.0225	7	.064	31	46	340	"	L.C.A.B.
BOAT LIGHTS	1	.003	3	.036	2.2	12	650	"	L.C.B.
HEATERS	1	.20	37	.083	204.7	266	316	V.C.	"

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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.			
PRIMING	2	1	.007	7	.036	14	24	180	Rubber.	L.C.A.B.
BILGE PUMPS	2	1	.04	19	.052	76	94	180	V.C.	"
MAIN BILGE LINE PUMPS	2	1	.04	19	.052	76	94	192	"	"
GENERAL SERVICE PUMPS	3	1	.25	37	.093	267	309	276	"	"
JACKETING PISTON COOLING	1	1	.04	19	.052	76	94	162	"	"
EMERGENCY BILGE PUMPS	2	1	.01	7	.044	20.5	31	96	Rubber	"
SANITARY PUMP	3	1	.20	37	.083	216	266	324	V.C.	"
FUEL OIL COOLING PUMPS	2	2	.50	37	.093	530	618	252	"	"
CIRC. SEA WATER PUMPS	2	1	.007	7	.036	22	24	198	Rubber	"
AIR COMPRESSORS	2	1	.04	19	.052	88	94	150	V.C.	"
FRESH WATER PUMPS	2	1	.0145	7	.052	28	37	216	Rubber	"
ENGINE TURNING GEAR	3	1	.04	19	.052	80	94	348	V.C.	"
CYLINDER COOLING PUMPS	2	1	.0225	7	.064	49.5	46	240	Rubber	"
ENGINE REVERSING GEAR	3	1	.60	37	.103	181	346	132	V.C.	"
LUBRICATING OIL PUMPS	6	1	.06	19	.064	120	122	48	V.C.	L.C.B.
OIL FUEL TRANSFER PUMPS	2	1	.20	37	.083	190.275	266	84	"	"
FUEL + LUB. OIL PURIFIERS	2	1	.12	37	.064	180	189	48	"	"
WINDLASS	8	1	.06	19	.064	120	122	48	V.C.	"
WINCHES, FORWARD	2	1	.12	37	.064	180	189	48	V.C.	"
" " " "	2	1	.12	37	.064	180	189	48	V.C.	"
WINCHES, AFT	2	1	.007	7	.036	21	24	84	Rubber	"
BOAT WINCHES										
STEERING GEAR										
(a) MOTOR GENERATOR	2	1	.15	37	.072	190	222	600	V.C.	L.C.A.B.
(b) MAIN MOTOR S.	1	1	.007	7	.036	24	24	126	Rubber	"
WORKSHOP MOTOR	5	1	.01	7	.044	20.4	31	324	"	"
VENTILATING FANS	3	2	.50	37	.093	600	618	198	V.C.	"
REFRIG. C.O. MACHINES	2	1	.04	19	.052	62	94	324	"	"
" C.O. WATER PUMPS	4	1	.04	19	.052	64	94	150	"	"
" BRINE PUMPS	1	1	.007	7	.036	12	24	180	Rubber	"
" " " "	1	1	.007	7	.036	12	24	180	"	"
CHILLED COOLER AIR COOLER FANS	1	1	.20	37	.083	179	266	396	V.C.	"
" " " "	1	1	.15	37	.072	156	222	378	Rubber	"
" " " "	1	1	.15	37	.072	156	222	378	V.C.	"
" " " "	1	1	.15	37	.072	156	222	378	V.C.	"

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

John Brown & Company, Limited

Electrical Engineers.

Date 29th Jan 1937

COMPASSES.

Distance between electric generators or motors and standard compass

90 ft

Distance between electric generators or motors and steering compass

82 ft

The nearest cables to the compasses are as follows:—

A cable carrying	18	Ampères	4	feet from standard compass	4	feet from steering compass.
A cable carrying	2.3	Ampères	20	feet from standard compass	12	feet from steering compass.
A cable carrying	9.1	Ampères	23	feet from standard compass	15	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.

John Brown & Company, Limited

Builder's Signature.

Date

29th Jan 1937

Is this installation a duplicate of a previous case

Yes

If so, state name of vessel

M.V. "ESSEX"

General Remarks (State quality of workmanship, opinions as to class, &c.) The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship are good.

3/2/37

Noted

YRm

5.2.37

Total Capacity of Generators 1350 Kilowatts.

The amount of Fee

£

78 : 15 : 0

When applied for,

29.1.37

Travelling Expenses (if any)

£

4 : 10 : 3

When received,

2.2.37

H. Hafford

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 12 FEB 1937

FRI 25 JUN 1937

TUE 6 JUL 1937

Assigned

See Glo J.E. 57900



© 2020

Lloyd's Register
Foundation