

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 25 APR 1928

Date of writing Report 12.4.1928 When handed in at Local Office 21.4.28 10 Port of GLASGOW.

No. in Survey held at GLASGOW. Date, First Survey 1.2.28 Last Survey 11.4.28 19  
Ref. Book. (Number of Visits... 1st...)

40699. on the M.V. "EL. ARGENTINO" Tons { Gross 9501  
Net 6023

Built at GOVAN. By whom built THE FAIRFIELD S.B. CO L<sup>TD</sup> Yard No. 629 When built 1928

Owners THE BRITISH & ARGENTINE S<sup>T</sup> NAVY CO L<sup>TD</sup> Port belonging to LONDON.

Electric Light Installation fitted by MESSRS FAIRFIELD S.B. & E. CO L<sup>TD</sup> Contract No. 629 When fitted 1928.

System of Distribution TWO-WIRE

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

Direct or Alternating Current, Lighting DIRECT Power 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 rating 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

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, HOLD LEVEL, 2 PORT & 2 STARBOARD, are they clear of all inflammable material YES

is the ventilation in way of the generators satisfactory 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 ON SWITCHBOARD FLAT IN ENGINE ROOM FORWARD END

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 —

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, 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 —

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, proportion of omnibus

bars YES, individual fuses to voltmeter, pilot or earth lamp YES, connections of switches YES

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches EACH GENERATOR HAS

ONE 800 AMP TRIPLE POLE CIRC<sup>T</sup> BR<sup>KR</sup>, OVERLOAD TRIPS & TIME LAGS & D.P. MAIN SWITCH, EACH OUTGOING CIRCUIT

OVER 300 AMPS HAS ONE D.P. CIRC<sup>T</sup> BR<sup>KR</sup> WITH TRIPS & TIME LAGS. OTHER OUTGOING CIRCUITS HAVE EACH 2 S.P.

HAND-GUARD FUSES & 1 D.P. QUICK BREAK KNIFE SWITCH.

Instruments on main switchboard 8 ammeters 4 voltmeters — synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system 2 EARTH LAMPS

WITH 2 FUSES & 2 SWITCHES [SINGLE POLE, LINKED]

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules 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 or V of the Rules YES.

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load LIGHTNING 2 VOLTS, POWER 6.5 VOLTS

**Cable Sockets and other connections,** are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets YES

**Paper Insulated Cables.** If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound NONE

**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

**Support and Protection of Cables,** state how the cables are supported and protected LEAD COVERED & BRAIDED CABLES FIXED WITH BRASS CLIPS, & LEAD COVERED, ARMoured & BRAIDED CABLES FIXED WITH GALVANISED IRON CLIPS.

If cables are run in wood casings, are the casings and caps secured by screws NONE, 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,** if lights are fitted, 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 SHEET LEAD

**Earthing Connections,** state what earthing connections are fitted and their respective sectional areas NONE

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 NONE

**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 NONE

**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 NONE

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected NONE

how are the cables led —

where are the controlling switches situated —

**Searchlight Lamps, No. of** NONE, whether fixed or portable —, are their fittings as per Rule —

**Arc Lamps,** other than searchlight lamps, No. of NONE, 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 YES, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

**Control Gear and Resistances,** are the general field and motor speed regulators, starters and controllers constructed and fitted as per Rule YES

**Lightning Conductors,** where lightning conductors are required, are those fitted as per Rule YES

**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 —

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office —

**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.
MAIN	4	165	220	750	300	RUSTON & HORNSBY	DIESEL OIL OVER 150° F.
AUXILIARY						5 CYLINDER, SOLID	
EMERGENCY						INJECTION, DIESEL	
ROTARY TRANSFORMER						ENGINE.	

**LIGHTING AND HEATING CONDUCTORS.**

Ref. No.	DESCRIPTION.	No. of Conductors PER POLE	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	1	.60620	91	.093	750	142	PURE RUBBER	LEAD ARM & BONDED
	EQUALISER CONNECTIONS	1	.60620	91	.093				
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
3	ENGINE ROOM	2	.07592	19	.072	39.6	60	- D° -	- D° -
	BOILER ROOM								
5	ACCOMMODATION (PASSENGER)	2	.06000	19	.064	22.67	156	- D° -	- D° -
6	OFFICERS & ENGINEERS	2	.06000	19	.064	21.3	200	- D° -	- D° -
7	CREWS ACCOMMODATION	2	.03960	19	.052	13.13	286	- D° -	- D° -
2	NAVIGATION ETC.	2	.02214	7	.064	7	280	- D° -	- D° -
4	REFRIG. MACHINERY SPACE	2	.02214	7	.064	5.33	60	- D° -	- D° -
1	WIRELESS	2	.01462	7	.052	12.7	244	- D° -	- D° -
	SEARCHLIGHT								
	MASTHEAD LIGHTS								
	SIDE LIGHTS								
	COMPASS LIGHTS								
	POOR LIGHTS								
8	CARGO LIGHTS	2	.07592	19	.072	64	280	- D° -	- D° -
9	W LAMPS	2	.03960	19	.052	14	432	- D° -	- D° -
	HEATERS								

**MOTOR CONDUCTORS.**

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALANCE PUMP	1	.14780	37	.072	140	262	- D° -	- D° -
	MAIN BRINE PUMPS	1	.14780	37	.072	140	160	- D° -	- D° -
	GENERAL SERVICE PUMP	1	.07592	19	.072	84	180	- D° -	- D° -
	EMERGENCY BRINE PUMP								
	SANITARY PUMP	1	.07592	19	.072	84	180	- D° -	- D° -
	CO2 BRINE PUMP	4	.06000	19	.064	80	136	- D° -	- D° -
	CIRC. FRESH WATER PUMPS	2	.02214	7	.064	44	200	- D° -	- D° -
	AIR COMPRESSOR	2	.03760	127	.103	590	160	- D° -	- D° -
	FRESH WATER PUMP	1	.00701	7	.036	24	236	- D° -	- D° -
10	ENGINE ROOM SMALL MOTORS	3	.14780	37	.072	140	52	- D° -	- D° -
	ENGINE TURNING GEAR								
11	DITTO	3	.14780	37	.072	140	52	- D° -	- D° -
	ENGINE LUBRICATING GEAR								
12	DITTO	3	.14780	37	.072	140	52	- D° -	- D° -
	LUBRICATING OIL PUMPS								
13	DITTO	3	.07592	19	.072	62.5	40	- D° -	- D° -
	OIL FUEL TRANSFER PUMP								
14	DITTO	5	.07592	19	.072	62.5	40	- D° -	- D° -
	WINDMILLS								
	WINDMILL FORWARD								
	WINDMILL AFT								
	STEERING GEAR								
	(a) Motor Generator								
	(b) MAIN MOTOR								
	WORKSHOP MOTOR	1	.01462	7	.052	30	108	- D° -	- D° -
	DRIVING								
	VENTILATING FANS	3	.24650	37	.093	192	146	- D° -	- D° -
	AUX. BRINE PUMP	1	.00299	3	.036	10	120	- D° -	- D° -
	CO2 BOOSTER MOTOR	1	.60620	91	.093	355	200	- D° -	- D° -

All Conductors are of annealed copper conforming to British Standard Specification No. 7.  
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
 The foregoing is a correct description.

*E. Skinner* Electrical Engineer. Date *16<sup>th</sup> April 1928*

COMPASSES.

Distance between electric generators or motors and standard compass *33 FEET FROM W/T ROTARY CONVERTER*

Distance between electric generators or motors and steering compass *30 " " " " " "*

The nearest cables to the compasses are as follows:—

A cable carrying *.08* Ampères *IN* feet from standard compass feet from steering compass.

A cable carrying *.08* Ampères feet from standard compass *IN* 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 *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.

THE FAIRFIELD SHIPBUILDING AND ENGINEERING CO., LIMITED.

*J. Hendon* MANAGER. Builder's Signature. Date *16/4/28*

Is this installation a duplicate of a previous case *Yes*. If so, state name of vessel *M.V. Davist's Grange*.

General Remarks (State quality of workmanship, opinions as to class, &c. *This installation has been fitted on board under special survey. Tested under full load conditions & found satisfactory. A short circuit developed in the armature winding of the forward refrigerating machine motor. This was made good by removing, re-insulating & re-building the damaged coils. The armature was then "drop tested" & subsequently run at load for 2 1/2 hours with satisfactory results. The materials & workmanship were found to be good and sound.*

It is submitted that this vessel is eligible for THE RECORD. Elec. Light

*J.S.M. 28/4/28*

Total Capacity of Generators *660* Kilowatts.

The amount of Fee ... £ *48.0.0* : *18/4/28* When applied for.  
 Travelling Expenses (if any) £ : : *19.5.28* When received.

*J.S. Rankin*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 24 APL 1928*

Assigned *Elec. Light.* *A.S.*

*A.S.*  
*21/4/28*

100127.—Transfer.  
 (The Surveys are requested not to write on or below the space for Committee's Minute.)