Rpt. 13.

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No. 29312

Date of writing Report ..... 19 .... When handed in at Local Office 17/11/1926 Port of NEWCASTLE-ON-TYNE Received at London Office 20 NOV 1926

No. in Reg. Book. 83103 Survey held at Sunderland Date, First Survey 4th Aug. Last Survey 24th Sept. 1926 (Number of Visits 13)

on the M.V. Silverash

Tons Gross 5299 Net 3091

Built at Sunderland By whom built J. L. Thompson & Sons Ld Yard No. 555 When built 1926

Owners Silver Line Ld. Port belonging to London

Electric Light Installation fitted by Sunderland Forge & Eng Co Ld. Contract No. 555 When fitted 1926

System of Distribution Double wire

Pressure *of supply for* **Lighting** 220 *volts,* **Heating** 220 *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 on port & starboard side, *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 arcs 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* Engine room port side

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* ....., *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* D.P. O/LOAD & REVERSE CURRENT CIRCUIT BREAKERS WITH TRIPLE POLE SWITCHES (THIRD POLE AS EQUALISER) FOR MAIN GENERATORS. D.P. O/LOAD. CIRCUIT BREAKERS FOR STEERING GEAR & AUXILIARY GENERATOR. & D.P. SWITCHES & FUSES FOR FEEDER CIRCUITS

Instruments *on main switchboard* 5 (Aux. 1.) *ammeters* 3 (Aux. 1) *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* earth Lamps.

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.

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Cables: *Single, twin, concentric, or multicore* Single & Twin *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* Lighting 4 Volts Power 6 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* —

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* secured to Iron plate with Galv'd Iron Clips in Cargo Holds & Engine Room, Lead covered & Braided in Brass Clips in Accommodation

If cables are run in wood casings, are the casings and caps secured by screws 5, *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* —

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* All cables bonded on Lighting & Power Circuits

, are their connections made as per Rule Yes

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* Oil Engine on Engine Room platform forward end

~~The above installation is in accordance with the Society's Rules. The vessel is eligible in my opinion for Notation "E" with Winches~~

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 —

, how are the cables led —

where are the controlling switches situated —

Searchlight Lamps, No. of Connection + Resistance only, *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 (Except steering gear) *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* —

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

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* —

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

W. T. Badger

3-125 Kw. Generators Fitted In Place Of 3-100 Kw. Generators 20 Nov
Installation Extended See Sunderland Report 32799 dated 5th Feb. 1940.
C.P. 24/6/40.

PARTICULARS OF GENERATING PLANT.

Description of Generator.	No. of	Rated at Kilowatts.	Volts.	Ampères.	Revs. per Min.	Driven by	Where driven by an internal combustion engine. Fuel Used.	Flash Point of Fuel.
Main	3	100	220	445	400	Diesel Engine		
Auxiliary ...	1	6	220	27.2	1000	Oil Engine		
Emergency ...								
Rotary Transformer								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	Description.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	Composition of Strand. No.	Diameter.	Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	How protected.
	Main Generator...	3	·4	61	·093	445 ✓	458 Feet 378 117.	V. Cambric	Lead C & B
	Equaliser Connections ...								
	Auxiliary Generator ...								
	Emergency Generator ...	2	·0100	7	·044	27.2 ✓	136	V.I.R	L C & B
	Rotary Transformer... ...								
	Auxiliary Switchboards ...								
	Engine Room ... ... }	2	·0045	7	·029	6.0 ✓	130	V.I.R	"
	Boiler Room ... ... }								
	Accomodation Mid		·0400	19	·052	47.5 ✓	24	V Cambric	L C A & B
	Wireless	2	·0070	7	·036	15.0 ✓	30	V.I.R	L C & B
	Searchlight	2	·0400	19	·052	—	56	"	"
	Masthead Light...	2	·002	3	·029	·44 ✓	600	"	"
	Side Lights	2	·002	3	·029	·44 ✓	60	"	"
	Compass Lights	2	·002	3	·029	·04 ✓	24	"	"
	Stern ~~Poop~~ Lights	2	·002	3	·029	·44 ✓	760	"	"
	Cargo Lights	2	·002	3	·029	3·3 ✓	60	"	"
	Arc Lamps	—							
	Heaters		·0400	19	·052	19.2		V.C	

MOTOR CONDUCTORS.

Ref. No.	Description.	No. of Motors.	Effective Area of each Conductor Sq. Ins.	Composition of Strand. No.	Diameter.	Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.		
✓	Ballast Pump	1	·1500	37	·072	140 ✓	252	V. I. R	
✓	Main Bilge Line Pumps ...	1	·0145	7	·052	20 ✓	172	"	
✓	General Service Pump ..	1	·0145	7	·052	24 ✓	172	"	
	Emergency Bilge Pump ...								
	Sanitary Pump								
✓	Circ. Sea Water Pumps ...	1	·1500	37	·072	118 ✓	65	"	"
	Circ. Fresh Water Pumps								
✓	Air Compressor ..No.1 ...	1	·75	21	·103	360 ✓	110	"	"
	No.2	1	·1500	37	·072	124 ✓	98	V.I.R	L C & B
	Fresh Water Pump								
✓	Engine Turning Gear ...	1	·1000	19	·083	118 ✓	180	V.I.R	L C & B
	Engine Reversing Gear ...								
✓	Lubricating Oil Pumps ...	2	·0145	7	·052	24 Each ✓	60	"	"
✓	Oil Fuel Transfer Pump	1	·0145	7	·052	34 ✓	240	"	"
	Windlass	1	·1500	37	·072	255 ✓	8	V CAMBRIC	L C A & B
	Winches, Forward	4	·1500	37	·072	116 Each ✓	48	V "	"
	Winches. Aft	5	·1500	37	·072	116 Each ✓	48	"	"
	" Midship	2	·1500	37	·072	116 Each ✓	48	"	"
	Steering Gear—								
	(a) Motor Generator...								
	(b) Main Motor	2	·0600	19	·064	80 Each ✓	600	V I R	L C & B
✓	Workshop Motor	1	·0045	7	·029	8 ✓	300	"	L C & B
	Ventilating Fans								
✓	Aux Fuel Pump	1	·1000	19	·083	118 ✓	25	"	
✓	Jacket Water Pumps	2	·1500	37	·072	140 ✓	60 & 100	"	"
✓	Sharples M/C	3	·0045	7	·029	10 Each	100	"	"
✓	Clean Oil Pump	1	·0045	7	·029	8 ✓	100	"	"
✓	Aux Jacket Water Pump	2	·0045	7	·029	12 Each	80	"	"
✓	Crane Motor	1	·0045	7	·029	16 ✓	100	"	"
	Refrig. Motor.	1	·0100	7	·044	17 ✓	300	"	"

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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.

The Sunderland Forge & Engineering Co. Ltd. *Electrical Engineers.* Date 5th Nov. 1926.

J Thompson

COMPASSES.

Distance between electric generators or motors and standard compass 112 feet

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying 3·25 *Ampères* 15 *feet from standard compass* 15 *feet from steering compass.*

A cable carrying ·1 *Ampères* 10 *feet from standard compass* led into *~~feet from~~ steering compass.*

A cable carrying ·1 *Ampères* led into *~~feet from~~ standard compass* 10 *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* all *course in the case of the standard compass, and* nil *degrees on* all. *course in the case of the steering compass.*

JOSEPH L. THOMPSON & SONS, LIMITED,

J Thompson Chairman *Builder's Signature.* Date 9th Nov. 1926

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 installation is in accordance with the Society's Rules. The vessel is eligible in my opinion for notation elec light, wireless

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

WH.

25/11/26.

Total Capacity of Generators 306 *Kilowatts.*

The amount of Fee ... ... £ 39 : – : When applied for, 2nd Sep 1926

Newcastle a/c.

Travelling Expenses (if any) £ : : When received, 26 Sep 1926 HWW.

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

Committee's Minute

Assigned

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

1m.1.26.—Transfer.

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