

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-8 OCT 1927

Received at London Office

Date of writing Report

19

When handed in at Local Office

-7 OCT. 1927

Port of

Newcastle-on-Tyne

No. in Survey held at

Sunderland

Date, First Survey

Last Survey

14 Sep. 1927

Reg. Book. Supp.

42713 on the

M. V. "Silverhazel"

(Number of Visits.....)

Gross 5302

Net 3091

Built at

Sunderland.

By whom built

J. L. Thompson & Son No. 557

When built

1927.

Owners

Silverline Ltd

Port belonging to

London.

Electric Light Installation fitted by

The Sunderland Forge & Eng Co Ltd

Contract No.

When fitted 1927.

RETAIN

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, BOTTOM PLATFORM - PORT & STARBOARD

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

ENGINE ROOM, BOTTOM PLATFORM, STAR 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

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 micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework

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

, 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 BREAKER & T.P. SWITCH FOR EACH MAIN GENERATOR. DP & O/LOAD CIRCUIT BREAKER FOR STEERING GEAR, REFRIG MACHINERY & AUXILIARY.

GENERATOR. DP SWITCH & FUSES FOR EACH OF THE REMAINING OUTGOING FEEDER CIRCUITS.

Instruments on main switchboard

4 FOR MAIN GENRS  
1" AUX GENR  
2" STEERING GEAR

ammeters  
4 FOR MAIN GENRS  
1" AUX GENR

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 LAMP, SWITCH & FUSE ON EACH POLE.

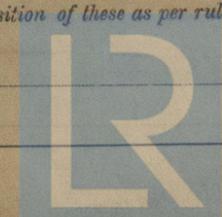
Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules

YES

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule

YES.

W475-0193 1/2



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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. JES.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load. 4-5 LIGHTING - 8-6 POWER.

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. JES.

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. JES.

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. JES.

Support and Protection of Cables, state how the cables are supported and protected. MAINS: LEAD COVERED ARMORED & BRAIDED SECURED TO IRON PLATE WITH GALV IRON CLIPS & PROTECTED BY COVER PLATE. MACH'Y SPACES: LEAD COVERED & BRAIDED CABLE SECURED TO IRON PLATE WITH GALV IRON CLIPS. ACCOMM: LEAD COVERED & BRAIDED CABLE SECURED BY BRASS CLIPS.

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. JES.

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. JES.

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed. JES. 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. JES.

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven. ---

Navigation Lamps, are these separately wired. JES., controlled by separate switch and separate fuses. JES., are the fuses double pole. are the switches and fuses grouped in a position accessible only to the officers on watch. JES.

has each navigation lamp an automatic indicator as per Rule. JES.

Secondary Batteries, are they constructed and fitted as per Rule. JES.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where or exposed to drip or condensed moisture, watertight. JES. 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 RESISTANCE & CONNECTION 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. JES., are the coils self-contained and readily removable for replacement. JES. are the brushes, brush holders, terminals and lubricating arrangements as per Rule. JES., are the motors, located in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material. JES.

are they protected from mechanical injury and damage from water, steam or oil. JES. are their axes of rotation fore and aft. JES.

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. JES.

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. ---

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	4	100	220	454.5	300	DIESEL OIL ENGINE	---	---
AUXILIARY	1	6	220	27.2	1000	PETROL PARAFFIN ENGINE	---	---
EMERGENCY	---	---	---	---	---	---	---	---
ROTARY TRANSFORMER	---	---	---	---	---	---	---	---

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	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	2	.40640	61	.033	454.5	280	VARN CAMBRIC.	LEAD COVERED & BRAIDED
	EQUALISER CONNECTIONS	1	.40640	61	.033	454.5	180	VARN CAMBRIC	LEAD COVERED & BRAIDED
	AUXILIARY GENERATOR	2	.01046	7	.044	27.2	210	V. I. R.	LEAD COVERED & BRAIDED.
	EMERGENCY GENERATOR	---	---	---	---	---	---	---	---
	ROTARY TRANSFORMER	---	---	---	---	---	---	---	---
	AUXILIARY SWITCHBOARDS	---	---	---	---	---	---	---	---
	ENGINE ROOM	2	.03960	19	.052	100.1	130	VARN CAMBRIC.	LEAD COVERED ARMORED & BRAIDED.
	BOILER ROOM	---	---	---	---	---	---	---	---
	ACCOMMODATION	---	---	---	---	---	---	---	---
	WIRELESS	2	.00701	7	.036	15	65	V. I. R.	LEAD COVERED & BRAIDED
	SEARCHLIGHT	2	.03960	19	.052	55	48	V. I. R.	LEAD COVERED & BRAIDED
	MASTHEAD LIGHT	2	.00322	1	.064	4.5	620	V. I. R.	LEAD COVERED ARMORED & BRAIDED.
	SIDE LIGHTS	2	.00194	3	.029	4.5	90	V. I. R.	LEAD COVERED & BRAIDED.
	COMPASS LIGHTS	2	.00194	3	.029	4.5	20	V. I. R.	LEAD COVERED & BRAIDED.
	36mm LIGHTS	2	.00194	3	.029	4.5	500	V. I. R.	LEAD COVERED & BRAIDED.
	CARGO LIGHTS	2	.00194	3	.029	3.2	60	V. I. R.	LEAD COVERED & BRAIDED.
	ARC LAMPS	---	---	---	---	---	---	---	---
	HEATERS	2	.03960	19	.052	84.4	130	VARN CAMBRIC.	LEAD COVERED ARMORED & BRAIDED.

RETAIN

RETAIN

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.				
	BALLAST PUMP	1	.14780	37	.072	138	285	V. I. R.	LEAD COVERED & BRAIDED
	MAIN BILGE LINE PUMPS	1	.01462	7	.052	34	276	V. I. R.	LEAD COVERED & BRAIDED
	GENERAL SERVICE PUMP	1	.01462	7	.052	34	268	V. I. R.	LEAD COVERED & BRAIDED
	EMERGENCY BILGE PUMP	---	---	---	---	---	---	---	---
	SANITARY PUMP	---	---	---	---	---	---	---	---
	CIRC. SEA WATER PUMPS	1	.14780	37	.072	138	140	V. I. R.	LEAD COVERED & BRAIDED.
	CIRC. FRESH WATER PUMPS	1	.40640	61	.033	346	140	VARN CAMBRIC	LEAD COVERED & BRAIDED
	AIR COMPRESSOR (NO. 2)	1	.14780	37	.072	186	128	VARN CAMBRIC	LEAD COVERED ARMORED & BRAIDED.
	FRESH WATER PUMP	---	---	---	---	---	---	---	---
	ENGINE TURNING GEAR	1	.10090	19	.083	116	255	V. I. R.	LEAD COVERED & BRAIDED.
	ENGINE REVERSING GEAR	---	---	---	---	---	---	---	---
	LUBRICATING OIL PUMPS	2	.01462	7	.052	34 EA.	120 EA.	V. I. R.	LEAD COVERED & BRAIDED.
	OIL FUEL TRANSFER PUMP	1	.01462	7	.052	34.	270	V. I. R.	LEAD COVERED & BRAIDED.
	WINDLASS	1	.14780	37	.072	228	72	VARN CAMBRIC.	LEAD COVERED & BRAIDED.
	WINCHES, FORWARD	4	.10090	19	.083	124 EA	60 EA	V. I. R.	LEAD COVERED & BRAIDED.
	WINCHES, AFT	5	.10090	19	.083	124 EA	60 EA	V. I. R.	LEAD COVERED & BRAIDED.
	WINCHES, MIDSHP	2	.10090	19	.083	124 EA	90 EA	V. I. R.	LEAD COVERED & BRAIDED.
	STEERING GEAR	---	---	---	---	---	---	---	---
	(a) MOTOR COMPASS	1	.06000	13	.064	78	530	V. I. R.	LEAD COVERED ARMORED & BRAIDED.
	(b) MAIN MOTOR FOOD	1	.06000	13	.064	78	690	V. I. R.	LEAD COVERED ARMORED & BRAIDED.
	WORKSHOP MOTOR	1	.00455	7	.029	9.5	295	V. I. R.	LEAD COVERED & BRAIDED.
	VENTILATING FANS (PERIA)	2	.01462	7	.052	34 EA	80 EA	V. I. R.	LEAD COVERED & BRAIDED.
	AUXILIARY FUEL PUMP	1	.10090	19	.083	118	76	V. I. R.	LEAD COVERED & BRAIDED.
	JACKET WATER PUMP	2	.14780	37	.072	138 EA	108 EA	V. I. R.	LEAD COVERED & BRAIDED.
	SHARPLES MACHINES	3	.00455	7	.029	10 EA	166 EA	V. I. R.	LEAD COVERED & BRAIDED.
	CLEAN OIL PUMP	1	.00455	7	.029	9.5	190	V. I. R.	LEAD COVERED & BRAIDED
	AUX JACKET WATER PUMP	2	.00455	7	.029	15 EA	108 EA	V. I. R.	LEAD COVERED & BRAIDED
	CRANE MOTOR	1	.00455	7	.029	16.5	110	V. I. R.	LEAD COVERED & BRAIDED.
	REFRIG MOTOR	1	.01046	7	.044	25	265	V. I. R.	LEAD COVERED & BRAIDED.
	C/O R MACHINE	1	.40640	61	.033	395	35	VARN CAMBRIC	LEAD COVERED & BRAIDED.
	BRINE PUMP	2	.01462	7	.052	34 EA	50 EA	V. I. R.	LEAD COVERED & BRAIDED.
	REFRIG CIRCULATING PUMP	1	.01462	7	.052	34	225	V. I. R.	LEAD COVERED & BRAIDED.

W475-0193 2/2

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. Limited. Electrical Engineers. Date 20.9.27.

COMPASSES.

Distance between electric generators or motors and standard compass 104 FEET

Distance between electric generators or motors and steering compass 96 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 4.3 Amperes 15 feet from standard compass 15 feet from steering compass.

A cable carrying .2 Amperes 10 feet from standard compass LED INTO feet from steering compass.

A cable carrying .2 Amperes 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,

*[Signature]*  
Chairman

*[Signature]*  
Builder's Signature.

Date 24<sup>th</sup> Sept. 1927.

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.

*[Signature]*  
11/10/27

Total Capacity of Generators 400 Kilowatts.

The amount of Fee ... £ 41 : 10 : { When applied for, 15 Sep 19.27

Travelling Expenses (if any) £ : : { When received, 17 Sep 19.27

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

Committee's Minute

Assigned Elec light

Im 1,28.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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