

Rpt. 13.

No. 11.246

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... 5 MAR 1934

Date of writing Report

19

When handed in at Local Office

3/3/1934

Port of

Belfast

No. in Survey held at

Belfast

Date, First Survey

3 Nov 1933

Last Survey

25 Feb. 1934

Reg. Book.

on the Twin Sc. MV. "ISIPINGO"

(Number of Visits.....)

Tons { Gross 7069.15.
Net 4311.63.

Built at

Belfast

By whom built

Workman, Belfast (1928) Ltd.

Yard No. 530

When built 1934.

Owners

Bank Line Ltd.

Port belonging to

Belfast

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD.

Contract No.

When fitted 1934

Is the Vessel fitted for carrying Petroleum in bulk

No.

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

AFT

PORT

AND 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

AFT

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

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

TRIPLE POLE, 0/LD

TIME LAG & REVERSE CURRENT CIRCUIT BREAKER, WITH ADDITIONAL 0/LDS. AND AUX. CONTACTS, FOR EACH GENERATOR.

THE 3RD POLE ACTING AS EQUALISER. DOUBLE POLE, QUICK BREAK, SWITCH AND FUSES FOR EACH OUTGOING CIRCUIT.

Instruments on main switchboard

6

ammeters

4

volts

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 AND 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.

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Lloyd's Register

Foundation

003875-003883-0194 1/2

Cables: Single, twin, concentric, or multicore SINGLE, TWIN, AND MULTICORE 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 8.0 VOLTS. POWER 10.2 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 IN MACHINERY SPACES LEAD COVERED ARMOURED & BRAIDED CABLES SECURED WITH G.I. CLIPS. IN ACCOM., LEAD COVERED AND BRAIDED CABLES SECURED WITH 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 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

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 EMERGENCY DYNAMO AND EMERGENCY

SWITCHBOARD. FITTED IN EMERGENCY DYNAMO HOUSE ON PROM. DECK AFT. WITH DOUBLE POLE & CHANGE OVER SWITCH

AND FUSES FOR EMER. GEN'S. THE GENERATOR BEING DRIVEN BY A DIESEL ENGINE EACH CIRCUIT ON SWBD. CONTROLLED WITH D.P. SW. AND FUSES. ALSO INTERCONNECTOR CABLES BETWEEN MAIN AND EMERGENCY SWITCHBOARDS.

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

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 —, whether fixed or portable —, are their fittings as per Rule

Arc Lamps, other than searchlight lamps, No. of —, are their wire 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 —

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

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.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	4	100	220	455	600	DIESEL ENGINE		
AUXILIARY								
EMERGENCY	1	16	220	73	850	DIESEL ENGINE		
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATORS.. EACH	1	.74350	31	.103	455	684	94	VARNISHED CAMBRIC	LEAD COVERED & BRAIDED.
EQUALISER CONNECTIONS		.12640	37	.083	227.5	266	47	"	"
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.03375	19	.044	72.5	78	48	"	"
ROTARY TRANSFORMER									
ENGINE ROOM... STARBOARD.	1	.00299	3	.036	8.5	12	234	V. I. R.	LEAD COVERED & BRAIDED
ENGINE ROOM... PORT.	1	.00299	3	.036	8.5	12	104	"	"
EMERGENCY SWITCHBOARDS	1	.03375	19	.044	72.5	78	324	VARNISHED CAMBRIC	LEAD COVERED & BRAIDED
ENGINE OFFICERS AND CREW LGS	1	.02214	7	.034	48.8	68	152	"	"
BOAT LIGHTING	1	.01046	7	.044	6.56	31	656	V. I. R.	"
EMERGENCY LIGHTING	1	.00761	7	.036	10.6	24	354	"	"
NAVIGATION	1	.00299	3	.036	3.3	12	616	"	"
GALLEY GEAR	1	.07592	19	.072	126.4	141	276	V. C.	"
ACCOMMODATION LIGHTING	1	.02214	7	.064	60.4	68	226	"	"
LAUNDRY GEAR	1	.02214	7	.064	54.1	68	388	V. C.	L. C. & B.
REFRIG. GEAR	1	.13640	37	.083	226.2	266	96	"	"
DONKEY BOILER FUEL HEATER	1	.00455	7	.029	9.1	18.2	50	V. I. R.	"
OIL FUEL HEATER	1	.06000	19	.064	109	122	154	V. C.	"
WIRELESS	1	.01046	7	.044	31	31	616	V. I. R.	L. C. & B.
SEARCHLIGHT									
MASTHEAD LIGHTS.. EACH	1	.00194	3	.029	.18	7.8	688	V. I. R.	L. C. & B.
SIDE LIGHTS.. EACH	1	.00194	3	.029	.18	7.8	88	"	"
COMPASS LIGHTS	1	.00194	3	.029	.11	7.8	25	"	"
POOP LIGHTS	1	.01046	7	.044	14.2	31	288	V. I. R.	L. C. & B.
CARGO LIGHTS	1	.01482	7	.052	31.62	37	152	"	"
ARC LAMPS									
HEATERS	1	.06000	19	.064	120.6	122	392	V. C.	L. C. & B.

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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.06000	19	.064	100	122	70	VARNISHED CAMBRIC	LEAD COVERED & BRAIDED.
MAIN BILGE LINE PUMPS	1	1	.02214	7	.064	63.5	68	174	"	"
GENERAL SERVICE PUMPS	2	1	.03960	19	.052	79	94	98	"	"
EMERGENCY BILGE PUMP	1	1	.02214	7	.064	51	68	408	"	"
CIRC. SEA WATER & SANITARY PUMP BILGE PUMP	1	1	.03960	19	.052	79	94	222	"	"
CIRC. SEA WATER PUMPS	1	1	.03960	19	.052	79	94	190	"	"
CIRC. FRESH WATER PUMPS	3	1	.06000	19	.064	105	122	218	"	"
AIR COMPRESSORS	2	1	.13640	37	.083	230	266	274	"	"
FRESH WATER PUMPS	2	1	.00761	7	.036	22.5	24	246	V. I. R.	"
ENGINE TURNING GEAR	2	1	.01046	7	.044	28	31	158	V. I. R.	"
LUBRICATING OIL PUMPS	2	1	.02214	7	.084	45.5	68	186	V. C.	"
ENGINE REVERSING GEAR	3	1	.01046	7	.044	28	31	182	V. I. R.	L. C. & B.
LUBRICATING OIL PUMPS	1	1	.03960	19	.052	84	94	78	V. C.	L. C. & B.
OIL FUEL TRANSFER PUMP	1	1	.13640	37	.083	227	338	232	"	"
WINDLASS	4	1	.06000	19	.064	120	136	520	"	"
WINCHES, FORWARD.	2	1	.06000	19	.064	120	136	424	"	"
WINCHES, MIDSHIP.	5	1	.06000	19	.064	120	136	400	"	"
WINCHES, AFT.										
STEERING GEAR—MOTORS	2	1	.03960	19	.052	77	94	408	V. C.	L. C. & B.
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	.00761	7	.036	22.5	24	234	V. I. R.	L. C. & B.
VENTILATING FANS, ACCOM.	4	1	.02214	7	.064	55	68	230	V. C.	L. C. & B.
VENT. FANS ENG. RM.	3	1	.00455	7	.029	13.75	18.2	170	V. I. R.	"
FUEL VALVE COOLING PUMPS	2	1	.00299	3	.036	11.4	12	254	"	"
OIL SEPARATORS	3	1	.00455	7	.029	8	18.2	186	"	"
OIL SERVICE PUMP	1	1	.00299	3	.036	9	12	126	"	"
DONKEY BOILER FUEL P.W.	1	1	.00299	3	.036	7.5	12	45	"	"

2 replaced by 6 cyl R & H engines 1238

2 Pot replaced by 6 cyl R & H engines 439.

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.

p.pro. THE SUNDERLAND FORGE & ENG. CO. LTD.

W. Park

Electrical Engineers.

Date 26.2.34.

COMPASSES.

Distance between electric generators or motors and standard compass 122 FT.

Distance between electric generators or motors and steering compass 112 FT.

The nearest cables to the compasses are as follows:—

A cable carrying 3.3 Ampères 11 feet from standard compass 8 feet from steering compass.

A cable carrying .11 Ampères 11 feet from standard compass LED INTO feet from steering compass.

A cable carrying .11 Ampères LED INTO feet from standard compass 8 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* courses in the case of the standard compass, and *nil* degrees on *all* courses in the case of the steering compass.

pro WORKMAN-CLARK (1928) LIMITED

T. Cunningham

Builder's Signature.

Date

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.) *This installation has been fitted in the vessel under special survey. The materials and workmanship are sound and good. An insulation resistance test has been applied and the installation tried out under working conditions with satisfactory results. In my opinion the vessel is eligible for notation in the Register Book of "Electric Light."*

It is submitted that
this vessel is eligible for
THE RECORD

Ecc. Light

6/3/34.

Total Capacity of Generators 416 Kilowatts.

The amount of Fee ... £ 41 : 18 : 3/31 19.34

Travelling Expenses (if any) £ : : 4.5.34

John K. Williams

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Ecc. Sh.



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