

Rpt. 13.

No. 16439

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 24 Sept. 1938 When handed in at Local Office

Received at London Office OCT 13 1938

No. in Survey held at Hamilton Hill on 2nd

Port of Liverpool

Reg. Book. Suppl.

Date, First Survey 9th April, Last Survey 19th Sept. 1938

89965 on the M.V. "SAN DELFINO"

(Number of Visits 12)

Tons { Gross 8072.04
Net 4770.63

Built at Hamilton Hill on 2nd

By whom built Furness S.B. Co. Ltd.

Yard No. 283

When built 1938

Owners Eagle Oil & Shipping Co. Ltd.

Port belonging to London

Electric Light Installation fitted by Furness S.B. Co. Ltd. Dec. 1937

Contract No. 283

When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Double wire

Pressure of supply for Lighting 110

volts, Heating 110

volts, Power 110

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 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? No, 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, Certs. furnished

Have certificates for generators under 100 kw. been supplied and approved? Manufacturers' test certs. furnished

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 starboard side

in way of the generators satisfactory? Yes, are they clear of all inflammable material? Yes, is the ventilation 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 starboard side near

generators 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

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 —, is the non-hygroscopic insulating material of an approved

type —, 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? No, are all screws and nuts securing connections effectively locked? Yes, are any fuses fitted on the live side of

switches? No Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

Double pole circuit breakers with overload tripping mechanisms on generator mains, double pole change over switches and double pole fuses on outgoing circuits.

Are turbine driven generators fitted with emergency trip switch as per rule — Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material? Yes Instruments on main switchboard 2 w.s. ammeters 2 w.s.

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

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

E lamps coupled to E through switches & fuses 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

W120-0097 (1/2)

© 2019

Lloyd's Register
Foundation

current protection devices been tested under working conditions *Yes* are all fuses labelled as per rule *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, V, X, XI, XII or XIII of the Rules *Yes*
If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes* Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *Less than 5.3 volts*
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 *Yes* 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 laid under machines or floorplates *Yes* if so, are they adequately protected *Yes*
Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Yes*
Support and Protection of Cables, state how the cables are supported and protected
If cables are run in wood casings, are the casings and caps secured by screws *Yes* are the cap screws of brass *Yes* are the cables run in separate grooves *Yes* 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* in machinery spaces and runs on tank decks along underside of the air and app gangway *Yes*
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 *Yes* 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 *Yes*
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* are they ventilated 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 *Artic' gastight*
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Artic' gastight*
fittings mounted in steel casing with glazed apertures *Yes* how are the cables led in gastight screwed tubing and in L.C.A.B. cable along fore and aft gangway, where are the controlling switches situated in machinery accommodation on sub-switchboard.
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 fitted* whether fixed or portable *Yes* are their fittings as per Rule *Yes*
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 *Yes* and *Yes*
have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yes* have certificates for all motors for essential services been supplied and approved *Yes, Certs. furnished* 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 *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 *Yes* are all fuses of the fitted cartridge type *Yes* are they of an approved type *Yes*
If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces *Yes*
Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes* are they suitably stored in dry situations *Yes*

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amps.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	1	16	110	145.5	650	Single cyl. steam engine			
AUXILIARY	1	16	110	145.5	650	Four cyl. diesel engine	Fuel Oil	Above 150°F	
EMERGENCY									
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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	1	19	.083	145.5	191	70	V.C.	L.C.A.B.
SHORT CIRC. CONNECTIONS	1	1	19	.083	191	191	200	V.C.	L.C.A.B.
AUXILIARY GENERATOR	1	1	19	.083	145.5	191	80	V.C.	L.C.A.B.
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM L.T.A.B. FEED	1	.0225	7	.064	37.9, 9.10	75	30	V.C.	L.C.A.B.
BOILER ROOM	1	.0045	7	.029	18.2	18.2	180, 80, 200, 50	V.I.R.	L.C.A.B.
AUXILIARY SWITCHBOARDS									
SUB-SWITCHBOARD FEED	1	.3	37	.103	97	885	370	V.C.	L.C.A.B.
WIRELESS	1	.0225	7	.064	15.2	15.2	90	V.C.	L.C.A.B.
STBD. ACCOM. D.B.	1	.0045	7	.029	18.2	18.2	25	V.I.R.	L.C.A.B.
NAV. L.B. D.B.	1	.007	7	.036	10	10	45+20	V.I.R.	L.C.A.B.
FWO. ACCOM. D.B.	1	.0225	7	.064	19.1	19.1	4	V.C.	L.C.A.B.
CARGO CONN. D.B.	1	.0045	7	.029	18.2	18.2	20	V.I.R.	L.C.A.B.
THESE DISTRIBUTION BOARDS FORM PART OF SUB-SWITCHBOARD PANEL IN MIDSHIP ACCOMMODATION									
ACCOMMODATION									
RET. ACCOM. S.B. FEED	1	.06	19	.064	68.8	185	95	V.C.	L.C.A.B.
ENGR. ENGR. PORT D.B.	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
ENGR. STBD. D.B.	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
ENGR. PORT D.B.	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
ENGR. STBD. D.B.	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
CARGO CONN. D.B.	1	.0045	7	.029	18.2	18.2	20	V.I.R.	L.C.A.B.
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	36	7.8	232 + 584	V.I.R.	L.C.A.B.
SIDE LIGHTS	1	.002	3	.029	36	7.8	80	V.I.R.	L.C.A.B. in pipe
COMPASS LIGHTS	1	.002	3	.029	36	7.8	40	V.I.R.	L.C.A.B.
STEER. LIGHTS	1	.002	3	.029	36	7.8	600	V.I.R.	L.C.A.B.
CARGO LIGHTS									
HEATERS									

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.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS...										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR...										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP...										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR...										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
ENGINE ROOM S.B. FEED:										
SUPPLY VENT. FANS	2	1	.007	19	.083	63.8	191	200	V.C.	L.C.A.B.
OIL FUEL PUMP	1	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
LATHE GRINDER	1	1	.0045	7	.029	18.2	18.2	30	V.I.R.	L.C.A.B.
DRILL	1	1	.002	3	.029	36	7.8	40	V.I.R.	L.C.A.B.
GALLEY BLOWER	1	1	.002	3	.029	36	7.8	40	V.I.R.	L.C.A.B.
FUEL OIL SERVICE PUMP	1	1	.003	3	.029	36	7.8	40	V.I.R.	L.C.A.B.
STEAM RAINING FUEL PUMP	1	1	.002	3	.029	36	7.8	40	V.I.R.	L.C.A.B.

The Electrical Equipment is installed in accordance with the approved plans.
All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
The foregoing is a correct description.

P. S. Glover per *WP*

Electrical Engineers.

Date 4-10-38

COMPASSES.

Minimum distance between electric generators or motors and standard compass 288 feet

Minimum distance between electric generators or motors and steering compass 284 feet

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères on the feet from standard compass 12 feet from steering compass.

A cable carrying .14 Ampères 12 feet from standard compass on the 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 *Every* course in the case of the standard compass, and *Nil* degrees on *Every* course in the case of the steering compass.

FOR TOWNERS SHIPBUILDING CO. LIMITED,

Geo. M. Robertson

Builder's Signature.

Date 4-10-38

Secretary.

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 electrical equipment of this*)

vessel has been fitted under special survey. The materials used and the workmanship are good. On completion the equipment was run under working conditions, the dynamo engine governors were operated, the overload trip mechanisms of the circuit breakers were adjusted and tested, the main switchboard, sub. switchboard, section and distribution boards, switches, fuses, cables, motors and fittings were examined and tested, the insulation resistance of all circuits and apparatus was measured and the spare gear was checked. This equipment can, in my opinion, be considered suitable for a classed vessel carrying petroleum in bulk.

Quintion finding equipment is fitted.

*Noted
28
15/10/38*

Total Capacity of Generators 32 Kilowatts.

The amount of Fee ... £ 23 : — :

When applied for,

19.

Travelling Expenses (if any) £ :

When received.

1/12 19 38

MR 2/12

B. Antinson

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 18 OCT 1938

Assigned

See minute on R. machinery