

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

APR -4 1938

Received at London Office

Date of writing Report 26th Mar, 1938 When handed in at Local Office 1-4-38 Port of Middlesbrough
 No. in Survey held at Haverton Hill-on-Sea and Wallsend, Date, First Survey 3rd March, Last Survey 24th March, 1938
 Reg. Book. Suppt. 40371 on the S.S. "TASAJERA" (Number of Visits 7)

Tons {
Gross
Net

Built at Haverton Hill-on-Sea By whom built Furness S. B. Co. Ltd. Yard No. 285 When built 1938
 Owners Anglo-American Oil Co. Ltd. Port belonging to London
 Electric Light Installation fitted by Furness S. B. Co. Ltd. Elec. Dept. Contract No. 285 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 — 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. herewith

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None fitted
Have certificates for generators under 100 kw. been supplied and approved Manufacturers' Dist Certs. only supplied

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 on centre line, 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 on centre line of after bulkhead

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 D.P. sw. + D.P. fuses on generator mains; D.P.C.O. sw. + D.P. 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 — Instruments on main switchboard 2 ammeters 1 voltmeters —

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 — have the reversed —

current protection devices been tested under working conditions — 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 — **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 — 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 *no* if so, are they adequately protected —

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 *L.C.A.B. cables run in pipe along trunk top; L.C.A.B. cables clipped up in machinery spaces; L.C.A.B. cables clipped up in accommodation.* 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, are the cables and fittings in accordance with the special requirements *no cables or fittings in these spaces*

Joints in Cables, state if any, and how made, insulated, and protected *home 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 *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 — are they ventilated 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 *Saferight "Wigan" type fittings installed in pumproom on gaslight screwed piping where are the controlling switches situated on outside of pumproom companionway*

Heating and Cooking Appliances, are they constructed and fitted as per Rule — are air heaters constructed and fitted as per Rule —

Searchlight Lamps, No. of *one* whether fixed or portable *fixed* 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 — if not of this type, state distance of the combustible material horizontally or vertically above the motors — and — have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *home fitted* have certificates for all motors for essential services been supplied and approved *no such motors fitted*

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 fitted in steel mesh* 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.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	7	110	63.6	550	single expansion steam engines		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	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.	Circuit.	Rule.			
MAIN GENERATOR	1	.04	19	.052	63.6	94	34	V.C.	L.C.A.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (MOTOR) GENERATOR									
ENGINE ROOM	1	.01	7	.044	19	31	40	V.I.R.	L.C.A.B.
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
Aft Accommodation	1	.01	7	.044	22	31	200	V.I.R.	L.C.A.B.
Forward Accommodation	1	.01	7	.044	29	118	700	V.I.R.	L.C.A.B.
Navigation Stg.	1	.0225	7	.164	10	46	700	V.I.R.	L.C.A.B.
WIRELESS	1	.01	7	.044	15	31	740	V.I.R.	L.C.A.B.
SEARCHLIGHT	1	.002	3	.029	4.6	7.8	40	V.I.R.	L.C.A.B.
MASTHEAD LIGHT	1	.002	3	.029	3.6	7.8	350	V.I.R.	L.C.A.B.
SIDE LIGHTS	1	.002	3	.029	3.6	7.8	70	V.I.R.	L.C.A.B.
COMPASS LIGHTS	1	.002	3	.029	1.4	7.8	30	V.I.R.	L.C.A.B.
POOR LIGHTS	1	.002	3	.029	3.6	7.8	700	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										
Repair Machinery	1	1	.01	7	.044	52	38	60	V.C.	L.C.A.B.
Sally Blower	1	1	.022	3	.029	4	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. Howe per [Signature]

Electrical Engineers.

Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass *240 feet*

Minimum distance between electric generators or motors and steering compass *235 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 *all* courses in the case of the standard compass, and *nil* degrees on *all* courses in the case of the steering compass.

For FURNES SHIPBUILDING CO. LTD

[Signature]

Builder's Signature.

Date

21/3/38

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *S.S. "Boscan"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The electrical equipment of this vessel has been fitted out under special survey. The materials used and the workmanship are good. On completion the equipment was operated under working conditions, the generator engine governors tested, the main switchboard, switches, fuses, cables, motors and fittings examined and tested, the insulation resistance of all circuits measured and the spare gear checked. In my opinion this equipment can be considered suitable for a classed vessel carrying petroleum in bulk.*

Total Capacity of Generators *14* Kilowatts.

The amount of Fee ... *£ 14* : - : *22.1.1938*

Travelling Expenses (if any) £ : : *2/5 1938*

[Signature]

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 5 APR 1938

Assigned *See Nwc 96094*

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



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