

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 16 NOV 1934

Date of writing Report 19 When handed in at Local Office 15-11-1934 Port of

No. in Survey held at Reg. Book. Date, First Survey Last Survey 19 (Number of Visits.....)

on the T.S.M.V. DORSET

Tons { Gross Net

Built at BELFAST By whom built WORKMAN CLARK (1928) LTD Yard No. 534 When built 1934

Owners FEDERAL STEAM NAVIGATION CO LTD / Port belonging to

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG CO LTD Contract No. 534 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 MAIN ENGINE ROOM

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 MAIN ENGINE ROOM

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 SAME COMPARTMENT

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

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 OVERLOAD & REVERSE CURRENT CIRCUIT BREAKERS WITH TIME LOG & PREFERENCE TRIPPING GEAR FOR EACH GENERATOR (3RD POLE ACTS AS EQUALISER SWITCH) DOUBLE POLE O/LOAD CIRC. BKR. OR DOUBLE POLE SWITCH & FUSES FOR EACH OUTGOING CIRCUIT.

Instruments on main switchboard 16 ammeters 3 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

SWITCH, FUSE & LAMP ON EACH POLE CONNECTED TO EARTH

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



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 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 L.C.A.B. IN ACCOMMODATION SUPPORTED BY BRASS CLIPS. L.C.A.B. IN ENGINE ROOM & OPEN DECKS SUPPORTED BY G.I. 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 FITTED

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 \_\_\_\_\_

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 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

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 \_\_\_\_\_ 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 \_\_\_\_\_

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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.	DIESEL ENGINE	STEAM ENGINE	Fuel Used.	Flash Point of Fuel.
MAIN	3	300	220	1360	340	DIESEL ENGINE			
AUXILIARY	1	200	220	908	425	STEAM ENGINE			
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	2	1.750	127	0.93	1360	1466	150	V.CAMBRIC	L.C.A.B.
EQUALISER CONNECTIONS	1	0.85	127	0.93		733	75	Do	Do
AUXILIARY GENERATOR	2	1.2	91	0.93	908	1122	146	Do	Do
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	0.225	7	0.64	20	46	160	V.I.R.	L.C.A.B.
BOILER ROOM ENGINE ROOM	1	0.225	7	0.64	25	46	195	Do	Do
AUXILIARY SWITCHBOARDS									
CARGO FORD	1	0.225	7	0.64	31	46	352	Do	L.C.B.
HEATERS MIDSHIP	1	.12	37	0.64	181.7	189	146	V.CAMBRIC	Do
CALORIFIERS	1	.04	19	0.52	81.7	94	766	Do	Do
GALLEY & PANTRY	2	.4	37	0.83	478.2	532	310	Do	Do
SHOBE CONNECTION	1	.3	37	1.03	346	346	218	Do	Do
ACCOMMODATION	1	.075	19	0.72	100	141	122	Do	Do
ACCOMMODATION BATTERY	1	.04	19	0.52	45	94	150	Do	Do
BOAT LTS	1	.003	3	0.36	4.4	12	576	V.I.R.	Do
BATTERY SUPPLY	1	.3	37	1.03		240	60	C.T.S.	
ENGINE ROOM LIGHTING	1	.003	3	0.36	6	12	195	V.I.R.	L.C.A.B.
WIRELESS	1	.007	7	0.36		24	440	Do	L.C.B.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	0.29	.18	7.8	750	V.I.R.	Do
SIDE LIGHTS	1	.002	3	0.29	.18	7.8	150	Do	Do
COMPASS LIGHTS	1	.002	3	0.29	.07	7.8	40	Do	Do
POOR LIGHTS NAVIGATION	1	.0045	7	0.29	8	18.2	576	Do	Do
CARGO LIGHTS AFT	1	.0225	7	0.64	31	46	202	Do	Do
ARC LAMPS									
HEATERS AFT	1	.04	19	0.52	65.9	94	722	V.CAMBRIC	L.C.B.

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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.04	19	0.52	72	94	152	V.CAMBRIC	L.C.A.B.
MAIN BILGE LINE PUMPS	2	1	.04	19	0.52	95.5	94	156	Do	Do
GENERAL SERVICE PUMP	1	1	.04	19	0.52	72	94	114	Do	Do
REFRIG COMPRESSOR	3	2	.5	37	0.93	600	618	80	Do	Do
REFRIG COMPRESSOR										
SANITARY PUMP	1	1	.04	19	0.52	72	94	126	Do	Do
CIRC. SEA WATER PUMPS	3	1	.2	37	0.83	230	266	192	Do	Do
CIRC. FRESH WATER PUMPS	3	1	.15	37	0.72	216	222	196	Do	Do
AIR COMPRESSOR	2	2	.12	37	0.64	373	378	210	Do	Do
FRESH WATER PUMP	2	1	.007	7	0.36	23	24	180	V.I.R.	Do
ENGINE TURNING GEAR	2	1	.04	19	0.52	62	94	84	V.CAMBRIC	Do
REFRIG COOLER FANS	4	1	.04	19	0.52	63	94	526	Do	Do
REFRIG COOLER FANS										
LUBRICATING OIL PUMPS	3	1	.06	19	0.64	100	122	248	Do	Do
OIL FUEL TRANSFER PUMP	2	1	.04	19	0.52	53	94	204	Do	Do
WINDLASS	1	1	.20	37	0.83	323	338 (1/2 hour)	60	Do	Do
WINCHES, FORWARD	10	1	.10	19	0.83	122.5	172	65	Do	L.C.B.
REFRIG FANS	1	1	.0225	7	0.64	24	46	470	V.I.R.	L.C.A.B.
WINCHES, AFT	10	1	.10	19	0.83	122.5	172	65	V.CAMBRIC	L.C.B.
REFRIG FANS	6	1	.007	7	0.36	11.5	24	558	V.I.R.	L.C.A.B.
STEERING GEAR-MAIN MOTOR	2	1	.12	37	0.64	192	189 (1/2 hour)	490	V.CAMBRIC	Do
BOAT WINCHES	2	1	.0225	7	0.64	44	46	115	V.I.R.	L.C.B.
CRANE										
WINCH MOTOR	3	1	.01	7	0.44	9.3	31	122	V.I.R.	L.C.A.B.
WORKSHOP MOTOR	1	1	.007	7	0.36	23	24	158	V.I.R.	L.C.A.B.
VENTILATING FANS	5	1	.01	7	0.44	23.5	31	500	V.I.R.	Do
REFRIG. CIRCULATING	2	1	.04	19	0.52	57	94	186	V.CAMBRIC	Do
REFRIG. BRINE PUMP	1	1	.0045	7	0.29	16	18.2	88	V.I.R.	Do
REFRIG. BRINE PUMP	4	1	.04	19	0.52	67	94	136	V.CAMBRIC	Do
OIL SEPARATORS	4	1	.0045	7	0.29	13.5	18.2	75	V.I.R.	IN PIPE
EXHAUST BOILER FAN	1	1	.0045	7	0.29	12.5	18.2	240	Do	L.C.A.B.
REFRIG. FANS	4	1	.0045	7	0.29	7	18.2	680	Do	Do

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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.

p.p. THE SUNDERLAND FORGE & ENGINEERING CO. LTD.,

*N. Park*

Electrical Engineers.

Date 6.11.34.

COMPASSES.

Distance between electric generators or motors and standard compass 98 FEET

Distance between electric generators or motors and steering compass 90 FEET

The nearest cables to the compasses are as follows:—

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

A cable carrying .07 Ampères 2 feet from standard compass 2 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 *—* course in the case of the standard compass, and *—* degrees on *—* course in the case of the steering compass.

pro WORKMAN CLARKE (1928) LIMITED

*F. Cunningham*

Secretary

Builder's Signature.

Date

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *M/V DURHAM*

General Remarks (State quality of workmanship, opinions as to class, etc.)

*The main generators were constructed under special survey. The materials and workmanship are good. They were tested at full load with satisfactory results at moored & sea trials. The vessel was wired in accordance with the approved plan & the Rules. Megger tests of switchboards, motors & generators were satisfactory. The installation was tried out at moored & sea trials. In my opinion the vessel is eligible for Notation "Electric Light"*

*Noted*

*True*

*20.11.34*

*[Signature]*

Total Capacity of Generators 1100 Kilowatts

The amount of Fee ... £ 59 : 0 : 15/11/34

Travelling Expenses (if any) £ : : 6.12.34

*Charles Hunter*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 20 NOV 1934

Assigned

*See Bel. FE 11408*

1m. 9. 90. — Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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