

Rpt. 13.

No. 33544

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report 21st Nov. 1942 When handed in at Local Office 2nd NOV 1942 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 6th Oct. Last Survey 23rd Nov. 1942
Reg. Book. Supt. and Walsend (Number of Visits.....)

86289 on the M.V. "EMPIRE CAVALIER" Tons {Gross...989.1
Net...59.12

Built at Sunderland By whom built Wm. J. Langford & Co., Ltd. Yard No. 743 When built 1942

Owners Ministry of War Transport Port belonging to Sunderland

Electrical Installation fitted by The Sunderland Engineering Co., Ltd. Contract No. 743 When fitted 1942

Is vessel fitted for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. No Sub.Sig. No

Have plans been submitted and approved Yes System of Distribution Two wire insulated Voltage of supply for Lighting 110

Heating Power 110 Direct or Alternating Current, Lighting Yes Power Yes If Alternating Current state periodicity Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule Yes Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

if not compound wound state distance between generators Yes and from switchboard Yes Where more than one generator is fitted are they

arranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes Have certificates of

test for machines under 100 kw. been supplied Yes and the results found as per rule Yes Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators Engine room starboard side forward

is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situated

near unprotected combustible material state distance from same horizontally Yes and vertically Yes, are the generators protected from mechanical

injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed Engine room starboard side

near generating sets

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material state distance from same horizontally Yes and vertically Yes, what insulation

material is used for the panels "Kynony Linsendyns", if of synthetic insulating material is it an Approved Type Yes, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule Yes Is the frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead"

side of switches Yes Description of Main Switchgear for each generator and arrangement of equaliser switches Double pole

Knife switch and double pole fuse

and for each outgoing circuit Double pole double throw Knife switch and

double pole fuse

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard Two

ammeters Two voltmeters Two synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Yes Earth Testing, state means provided Ed lamps coupled to E through two fuses

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled as

per Rule Yes If circuit breakers are provided for the generators, at what overload current did they open when tested Yes, are the reversed current

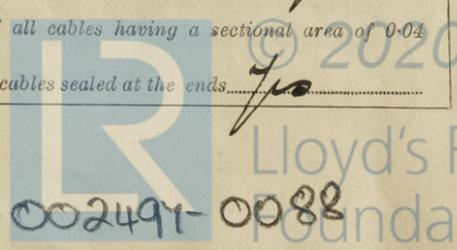
protection devices connected on the pole opposite to the equaliser connection Yes, have they been tested under working conditions, and at what current

did they operate Yes Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes

Cables, are they insulated and protected as per the appropriate Tables of the Rules Yes, if otherwise than as per Rule are they of an approved type Yes (W.E.)

state maximum fall of pressure between bus bars and any point under maximum load 4.4v., are the ends of all cables having a sectional area of 0.04

square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the ends Yes



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with insulating compound or waterproof insulating tape Yes. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or 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, etc., lead covered Yes or run in conduit. State how the cables are supported and protected. L.C.A.B. cables run in hardwood slats under fire and escape way, in pipe with expansion joints on deck for auxiliary supply and clipped to surface or to tray in machinery spaces. L.C. cables clipped up in accom.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. Yes

Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. Yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed. Yes and with what material. Lead or fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position. _____ and method of control. _____

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches. Yes and fuses. Yes. Are the switches and fuses in a position accessible only to the officers on watch. Yes, is an automatic indicator fitted. Yes Secondary Batteries, are they constructed and fitted as per Rule. _____, are they adequately ventilated. _____ what is the battery capacity in ampere hours. _____

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. Yes, if so, how are they protected. "Wiggin" flameproof lighting fittings installed in accommodation spaces and where are the controlling switches fitted. In accommodation spaces, are all fittings suitably ventilated. Yes, are all fittings and accessories constructed and installed as per Rule. Yes Searchlight Lamps, No. of _____, whether fixed or portable. _____, are their fittings as per Rule. _____ Heating and Cooking, is the general construction as per Rule. _____

are the frames effectually earthed. _____, are heaters in the accommodation of the convection type. _____ Motors, are all motors constructed and installed as per Rule. Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. Yes, if situated near unprotected combustible material state minimum distance from same horizontally. _____ and vertically. _____ Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment. _____

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. _____ Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. _____ Control Gear and Resistances, are they constructed and fitted as per Rule. Yes Lightning Conductors, where required are they fitted as per Rule. _____ Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with. Yes, are all fuses of the cartridge type. Yes

are they of an approved type. Yes. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. Yes. Are the cables lead covered as per Rule. Yes Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yes, are they suitably stored in dry situations. Yes Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. Yes

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	1	25	110	227	685	Single cylinder steam engine		
Auxy.	1	25	110	227	1000	Three cylinder diesel engine	Fuel oil above 150° F	
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	25	1	37/072	227	246	30	V.C.	L.C.A.B.
" EQUALISER								
Auxy. Generator	25	1	37/072	227	246	50	V.C.	L.C.A.B.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...							
Bridge d.B. Gangway Feed	1	37/072	142	246	680	V.C.	L.C.A.B.
Bridge d.B. Auxiliary Feed	1	37/072	142	246	680	V.C.	L.C.A.B.
Aft d.B. Feed	1	19/064	103	135	160	V.C.	L.C.A.B.
Engine Room d.B. Feed	1	19/064	97	135	120	V.C.	L.C.A.B.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	34	46	80	W.E.	L.C.
NAVIGATION LIGHTS	1	7/086	5	24	80	W.E.	L.C.
LIGHTING AND HEATING							
Offs. Ltg. d.B.	1	7/044	19	31	30	W.E.	L.C.
W/T duplicate	1	7/064	34	46	80	W.E.	L.C.
Saloon Ltg. d.B.	1	7/044	25	31	30	W.E.	L.C.
Cargo Ltg. d.B.	1	7/044	14	31	30	W.E.	L.C.
Bridge & Nav. d.B.	1	7/036	15	24	80	W.E.	L.C.
Crew Accom. d.B. (Ch.)	1	7/036	10	24	80	W.E.	L.C.
Upper d.B. Ltg. Post	1	7/044	15	31	140	W.E.	L.C.
Lower d.B. Ltg. d.B.	1	7/029	15	15	50	W.E.	L.C.
Comp. d.B. Ltg. Post	1	7/044	13	31	150	W.E.	L.C.
Comp. d.B. Ltg. d.B.	1	7/029	13	15	70	W.E.	L.C.
Emergency W/T	1	7/029	10	15	120	W.E.	L.C.
Aft Cargo Ltg. d.B.	1	7/029	2	15	140	W.E.	L.C.
Engine Room Ltg. d.B.	1	7/064	20/20	75	80/200	V.C.	L.C.A.B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Vent. Fan (Off Mid. d.B.)	1	3	1	7/044	25	31	100	W.E. L.C.A.B.
Vent. Fan (Off Aft. d.B.)	1	4	1	7/052	35	37	140	W.E. L.C.A.B.
Grinder	1	3	1	7/044	25	31	30	W.E. L.C.A.B.
Drill	1	2	1	7/036	17	24	18	W.E. L.C.A.B.
Lathe	1	1 1/2	1	7/029	13	15	80	W.E. L.C.A.B.
Oil Pump	1	2	1	7/036	17	24	120	W.E. L.C.A.B.
Oil Fuel Blower	1	1	1	7/029	9	15	120	W.E. L.C.A.B.
Boiler Rm. Fan	1	3/4	1	7/044	7	31	100	W.E. L.C.A.B.
Fuel Pumping Pump	1	1	1	7/029	9	15	120	W.E. L.C.A.B.
Engine Running Motor	1	12	1	19/064	100	135	100	V.C. L.C.A.B.

Note: W.E. cables. In addition to the cables quoted above all the L.C. sub. circuit wiring is W.E. pattern.

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.
 The foregoing is a correct description.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.

Electrical Engineers.

Date 25.11.1942

J. H. Gandy

COMPASSES.

Minimum distance between electric generators or motors and standard compass 266 feet

Minimum distance between electric generators or motors and steering compass 264 feet

The nearest cables to the compasses are as follows:—

A cable carrying 1/4 Ampères on the feet from standard compass 7 feet from steering compass.

A cable carrying 1/4 Ampères 7 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 *any* course in the case of the

standard compass, and *Nil* degrees on *any* course in the case of the steering compass.

For and on behalf of
 JAMES LING & SONS LIMITED.

W. H. Gandy
 Managing Director

Builder's Signature.

Date 27 Nov. 1942

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel "Empire Worsworth"

Plans. Are approved plans forwarded herewith *No* If not, state date of approval 14/2/42

Certificates. Are certificates of test for ~~motors engaged on essential services~~ and generators forwarded herewith *Yes*

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) *The electrical*

equipment of this vessel has been installed under special survey in accordance with the approved plans and with the Specification. The materials used are of good quality and the workmanship is good. On completion the equipment was run under working conditions with satisfactory results and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a classed vessel intended for carrying petroleum in bulk.

Noted
L.H.
 2/12/42

Total Capacity of Generators 50 Kilowatts.

The amount of Fee ... £34 : 7/6 : When applied for, 25 Nov. 1942
 (incl. Specifn.)
 Travelling Expenses (if any) £ : : When received, 10

Santerson
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 8 DEC 1942
 Assigned See Sld J.C. 33544

5m. 4.3n. - Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

