

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

17 FEB 1943

Received at London Office

Date of writing Report 9th Feb. 1943 When handed in at Local Office 16 FEB 1943 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 8th Dec. '42 Last Survey 12th Feb. 1943
Reg. Book. Suppt. and Walland (Number of Visits 7)

89098 on the S.S. "WEARFIELD" Tons {Gross 9795
Net 5783

Built at Sunderland By whom built Sir J Langtons, Ltd Yard No. 746 When built 1943

Owners Huntingdon, Ltd. Port belonging to Newcastle

Electrical Installation fitted by The Sunderland Eng. Co., Ltd. Contract No. 746 When fitted 1943

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

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

Heating None 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 None Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

if not compound wound state distance between generators None and from switchboard None Where more than one generator is fitted are they

arranged to run in parallel No, 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 None 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 port side on platform

aft, 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 None and vertically None, 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 port side aft 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 None and vertically None, what insulation

material is used for the panels 'Economy Linsamp', 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 None 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

quick break knife switch and double pole fuse

and for each outgoing circuit double pole double throw quick break 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 None synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection None Earth Testing, state means provided E lamps connected to E through end of fuse

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 None, are the reversed current

protection devices connected on the pole opposite to the equaliser connection None, have they been tested under working conditions, and at what current

did they operate None 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.F.

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 0.01

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



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. *Yes* Are cables in machinery spaces, galleys, laundries, etc., lead covered *Yes* or run in conduit. *Yes* State how the cables are supported and protected. *L.C.A.B. cables run in hardwood bulkheads under fore and aft gangways. Aux. feeds run in pipe with expansion joints on deck. L.C.A.B. cables clipped to surface or tray in machinery spaces. L.C. cables clipped to surface in accommodation.*

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 effectually 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. *Wigan flameproof lighting fittings installed in accommodation space.*

and where are the controlling switches fitted. *In accommodation space.*, 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	2	30	110	278	635	Single cylinder steam engine		
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 GENERATORS	2 x 30	1	37.082	278	296	36.39	V.C.	L.C.A.B.
" EQUALISER								
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							
Midship to Gangway Feed	1	37.072	135	246	750	V.C.	L.C.A.B.
Midship to Aft Feed	1	37.072	135	246	820	V.C.	L.C.A.B.
Aft to Feed	1	19.064	83	135	170	V.C.	L.C.A.B.
L.B. Auxiliaries to Feed	1	7.064	33	75	20	V.C.	L.C.A.B.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7.064	35	75	100	V.C.	L.C.
NAVIGATION LIGHTS	1	7.064	4	31	110	W.E.	L.C.
LIGHTING AND HEATING	All feeds to have 24g. cables from bridge to deck.						
Bridge to Deck	1	7.064	22	31	15	W.E.	L.C.
Mid. to Fore. Comp. Cab.	1	7.064	12	31	15	W.E.	L.C.
Upper Comp. to Deck	1	7.064	13	31	75	W.E.	L.C.
Bridge to Deck	1	7.064	13	31	110	W.E.	L.C.
Charging Board	1	1.064	3	10	130	W.E.	L.C.
Lower Prop. to Deck	1	7.064	20	31	30	W.E.	L.C.
Lower Prop. to Port	1	7.064	21	31	75	W.E.	L.C.
Aft Comp. to Deck	1	7.064	2	31	30	W.E.	L.C.
Upper Prop. to Deck	1	7.064	13	31	30	W.E.	L.C.
Upper Prop. to Port	1	7.064	9	31	110	W.E.	L.C.
Hoists to Locomotion	1	7.064	-	31	100	W.E.	L.C.
E.L. to Deck	1	7.064	29	31	30	W.E.	L.C.A.B.
E.L. Charging Board	1	1.064	3	10	20	W.E.	L.C.A.B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	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.			
Vent Fan (Off E.L.S.B.)	1	4	1	7.064	33	75	220	V.C.	L.C.A.B.
Vent Fan (Off Mid. to Deck)	1	3	1	7.064	25	75	100	V.C.	L.C.A.B.
Workshop Motor	1	*	1	7.064	-	31	50	W.E.	L.C.

Note: In addition to the cables mentioned above all the suit. 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.

A. Gurney

Electrical Engineers.

Date 10-2-1943

COMPASSES.

Minimum distance between electric generators or motors and standard compass 290 feet

Minimum distance between electric generators or motors and steering compass 286 feet

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères on the feet from standard compass 7 feet from steering compass.

A cable carrying .14 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 Every course in the case of the standard compass, and Nil degrees on Every course in the case of the steering compass.

SIR JAMES LAING & SONS LIMITED

Manly
 Managing Director

Builder's Signature.

Date 13 Feb: 1943

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

Plans. Are approved plans forwarded herewith Yes If not, state date of approval 7/5/42 + 19/5/42

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. 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 resistances of all circuits was measured and found good. This equipment is in my opinion suitable for a classed vessel carrying petroleum in bulk.

Noted
 ✓
 23/2/43

Total Capacity of Generators 60 Kilowatts

The amount of Fee ... £ 28 : 10 : 15 FEB 1943

Travelling Expenses (if any) £ : : When received.19....

G. Harrison

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 26 FEB 1943

Assigned See Mtd. G.E. 33618

5m.4.39.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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