

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

15 APR 1943

Date of writing Report... 15 April 43 When handed in at Local Office... 13 APR 1943 Port of... Sunderland  
 No. in Survey held at... Sunderland Date, First Survey... 6th Jan. Last Survey... 8th April 1943  
 Reg. Book... Suppt. (Number of Visits... 13)  
 86313 on the M.V. "EMPIRE COMMERCE"

Tons { Gross... 372.2  
 Net... 199.3

Built at... Sunderland By whom built... Sir J. Langtons, Ltd. Yard No. 748 When built... 1943

Owners... Ministry of War Transport Port belonging to... Sunderland

Electrical Installation fitted by... The Sunderland Eng. Co. Ltd. Contract No. 748 When fitted... 1943

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 main cables 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... Generators, are they compound wound... Yes, are they level compounded under working conditions... Yes,

if not compound wound state distance between generators... and from switchboard... 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... 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... Steam generator E.L. engine forward, boiler

generator E.L. etc., 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... and vertically... 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 continuous forward

near steam 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... and vertically... what insulation

material is used for the panels... "Economy Linings" 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... 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... Instruments on main switchboard

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

equaliser connection... Earth Testing, state means provided... E lamps connected to E through one of 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... are the reversed current

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

did they operate... 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

state maximum fall of pressure between bus bars and any point under maximum load... 44.44, 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



Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to dried or condensed moisture, weatherproof. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. If so, how are they protected. flameproof lighting fittings installed in stokeholds, engine rooms and where are the controlling switches fitted. In engine space above. are all fittings suitably ventilated. are all fittings and accessories constructed and installed as per Rule. Searchlight Lamps, No. of, whether fixed or portable. 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 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. 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. 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. are all fuses of the cartridge type. are they of an approved type. Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships. Are the cables lead covered as per Rule. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. are they suitably stored in dry situations. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory.

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 ✓	685 ✓	Single expansion		
Auxiliary	1 ✓	20 ✓	110 ✓	182 ✓	750 ✓	Single expansion	Fuel Oil	Above 100°F
EMERGENCY ...						Double expansion		
ROTARY TRANSFORMER						Direct engine		

DESCRIPTION.	KILOWATTS.	CONDUCTORS.				APPROX. LENGTH (least plus return feet).	INSULA- TED WITH.	HOW PROTECTED.
		No. in Parallel For Poles.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES.				
				In the Circuit.	Rule.			
MAIN GENERATORS ... ..	2 x 30	1	371.098	270	348	31.96	V.C.	L.C.A.B.
" " EQUALISER ... ..								
Armature Generator	20	1	371.072	182	246	280	V.C.	L.C.A.B.
EMERGENCY GENERATOR ... ..								
ROTARY TRANSFORMER; MOTOR ... ..								
" " GENERATOR ... ..								

[illegible]

WIRELESS								
NAVIGATION LIGHTS	off hind sb.	1	7/064	25	75	70	V.C.	L.C.
		1	7/036	6	24	75	W.E.	L.C.
LIGHTING	Eng. Rm. Ltg. sb.	1	7/064	15+15	46	10+10	V.L.H.	L.C.A.B.
Bridge & Nav. Ltg. sb.		1	7/036	8	24	75	W.E.	L.C.
Eng. W.T. Room		1	7/064	25	75	70	V.C.	L.C.
E.S.O. Batt. ch.		1	7/036	5	24	70	W.E.	L.C.
Officers' Ltg. sb.	off hind sb.	1	7/036	18	24	50	W.E.	L.C.
Cargo Ltg. sb.		1	7/044	14	31	20	W.E.	L.C.
Saloon Ltg. sb.		1	7/044	25	31	20	W.E.	L.C.
Crew Alarm Batt.		1	7/029	5	15	70	W.E.	L.C.
Genl. Ltg. T.G.		1	1/064	1	10	220	W.E.	L.C.A.B.
Pump Rk. Ltg. Port sb.		1	7/044	12	31	80	W.E.	L.C.
Pump Rk. Ltg. Star sb.		1	7/029	12	15	30	W.E.	L.C.
Upper Rk. Ltg. Port sb.	off aft sb.	1	7/044	15	31	70	W.E.	L.C.
Upper Rk. Ltg. Star sb.		1	7/029	15	15	30	W.E.	L.C.
Aft Cargo Ltg. sb.		1	7/029	2	15	35	W.E.	L.C.
Young. W.T. Batt. ch.		1	7/029	10	15	120	W.E.	L.C.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
Forced Draft Fan	1	5	1	7/064	40.6	75	220	V.E.	L.C.A.B.
Oil Separator	2	3	1	7/064	25.1	31	2060	V.I.R.	L.C.A.B.
Running Pump.	1	1.5	1	7/036	13.5	24	40	W.E.	L.C.A.B.
Sew. & Drain Pump. Off Bldg.	1	3	1	7/052	29.5	37	80	W.E.	L.C.A.B.
I.L. Crane	1	3	1	7/064	25	31	80	V.I.R.	L.C.A.B.
Workshop.	1	3	1	7/064	25	31	100	V.I.R.	L.C.A.B.
Vent. Fan (Off Trid. Hk.)	1	3	1	7/064	27	31	80	V.I.R.	L.C.
Vent. Fan (Off Apt. Hk.)	1	3	1	7/052	27	37	70	W.E.	L.C.A.B.

Note: All net. casino winning is done in W.E. portion L.C. cable.



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 6. 7 - 1943

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 167 feet

Minimum distance between electric generators or motors and steering compass 165 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 his degrees on every course in the case of the standard compass, and his degrees on For and on behalf of course in the case of the steering compass.

Builder's Signature.

Date 22 April 1943.

Is this installation a duplicate of a previous case. No If so, state name of vessel

Plans. Are approved plans forwarded herewith. No If not, state date of approval 13/1/43 & 1/2/43

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 carrying petroleum in bulk.

Noted  
19/4/43

Total Capacity of Generators 80 Kilowatts.

The amount of Fee (incl. specifi.) £ 38 : 2/6 : When applied for, 8 April 1943  
Travelling Expenses (if any) £ : : When received, 19.....

Sanison  
Surveyor to Lloyd's Register of Shipping.

WED. 28 APR 1943

Committee's Minute

Assigned See PE marks, etc.



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