

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... 16 NOV 1944

Date of writing Report... 6th OCTOBER 1944 When handed in at Local Office... 28/10/44 Port of... GLASGOW

No. in Survey held at... PORT GLASGOW Date, First Survey... 6th JUNE 1944 Last Survey... 16th OCTOBER 1944
Reg. Book... 89334 on the... EMPIRE RAWLINSON

Gross... Tons... Net... Tons...
Built at... PORT GLASGOW By whom built... LITHGOWS LTD 157 Yard No... 994 When built... 1944

Owners... MINISTRY OF WAR TRANSPORT Port belonging to... GREENOCK

Electrical Installation fitted by... MESSRS SUNDERLAND FORGE & ENGINEERING CO. LTD Contract No... 994 When fitted... 1944

Is vessel fitted for carrying Petroleum in bulk... Is vessel equipped with D.F. YES E.S.D. YES Gy.C. YES Sub.Sig. —

Have plans been submitted and approved... YES System of Distribution... TWO WIRE Voltage of supply for Lighting... 220

Heating... 220 Power... 220 Direct or Alternating Current, Lighting... D.C. Power D.C. 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... 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... IN ENGINE ROOM

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... IN ENGINE ROOM ABOVE GENERATORS

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... SINDANYO, 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... MAIN GENERATORS THREE

1000 AMP CIRCUIT BREAKERS FITTED WITH REVERSE CURRENT AND OVERLOAD TRIPS WITH TIME LAGS

HV GENERATOR ONE D.P. 75 AMP COIL OPERATED CIRCUIT BREAKER FITTED WITH OVERLOAD TRIPS AND TIME LAGS

and for each outgoing circuit EITHER D.P. CIRCUIT BREAKER FITTED WITH OVERLOAD TRIPS OR D.P. KNIFE

PATTERN SWITCHES AND FUSES

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES Instruments on main switchboard... 8

ammeters... 3 voltmeters... 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... EARTH LAMPS

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... 25%, are the reversed current

protective 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... 100 AMPS 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... —

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

with insulating compound — or waterproof insulating tape. — 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 —, if so, are they adequately protected. — Are cables in machinery spaces, galleys, laundries, etc., lead covered YES or run in conduit. YES State how the cables are supported and protected. MAINS: V.C. L.C. CABLES CLIPPED TO SOLID STEEL TRAY.

MACHINERY SPACE: 2 CORE V.C. L.C. CABLE CLIPPED TO STEELWORK.

ACCOMMODATION: H.R.B. CABLE CLIPPED TO WOODWORK.

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

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. FLARE 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. —, if so, how are they protected. —

and where are the controlling switches fitted. —, 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. YES,

are the frames effectually earthed. YES, are heaters in the accommodation of the convection type. YES 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. YES

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. YES Have certificates of test for motors under

100 BHP intended for essential services been supplied and the results found as per Rule. YES Control Gear and Resistances, are they constructed and

fitted as per Rule. YES Lighting 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. 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 ...	3	210	220	954	600	I.C. ENGINE attached	OIL	ABOVE 150°C.
AUXILIARY	1	15	220	68	1000	I.C. ENGINE attached	OIL	ABOVE 150°C.
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 ...	210	2	61/103	954	1080	86	V.C.	L.C.
" " EQUALISER ...		1	61/103	—	540	43	V.C.	L.C.
AUXILIARY GENERATOR	15	1	19/072	68	157	240	V.C.	L.C.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 ...							
WINCH FORWARD RING MAIN	2	19/083	262	382	1500	V.C.	L.C.B.
WINCH MID. FORWARD RING MAIN	2	19/083	234	382	986	V.C.	L.C.B.
WINCH AFT RING MAIN	2	19/083	234	382	1400	V.C.	L.C.B.
GALLEY RANGE SECTION	1	37/093	186	214	228	H.R.B.	
GALLEY POWER SECTION	1	37/093	192	214	228	H.R.B.	
SALOON POWER SECTION	1	37/093	18	214	160	H.R.B.	
SALOON LIGHTING SECTION	1	19/072	77	157	160	V.C.	L.C.B.
MID. AFT LIGHTING SECTION	1	19/072	44	157	260	V.C.	L.C.B.
WIRELESS & RADAR SECTION	1	19/072	107	157	320	V.C.	L.C.B.
CREW POWER SECTION	1	19/064	116	135	650	V.C.	L.C.
ENGINE-ROOM LIGHTING SECTION	1	7/064	34	75	30	V.C.	L.C.B.
CREW AFT GALLEY	1	19/083	180	191	696	V.C.	L.C.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	1	7/064	35	75	48	V.C.	L.C.B.
NAVIGATION LIGHTS ...	1	7/036	10	24	70	W.E.	L.C.
LIGHTING AND HEATING ...							
ENGINE-ROOM AUXILIARY D.B. N°2	1	7/064	74	75	200	V.C.	L.C.B.
ENGINE-ROOM AUXILIARY D.B. N°3	1	7/064	74	75	88	V.C.	L.C.B.
ENGINE-ROOM AUXILIARY D.B. N°4	1	19/083	182	191	170	V.C.	L.C.
ENGINE-ROOM AUXILIARY D.B. N°4A	1	19/083	66	191	154	V.C.	L.C.
ENGINE-ROOM LIGHTING D.B. PORT AFT	1	7/036	14	24	270	W.E.	L.C.
ENGINE-ROOM LIGHTING D.B. STBD AFT	1	7/036	8	24	175	W.E.	L.C.
ENGINE-ROOM LIGHTING D.B. FORWARD	1	7/036	7	24	200	W.E.	L.C.
CREW & CHARGO AFT D.B.	1	7/064	15	75	560	V.C.	L.C.B.
FORWARD CHARGO D.B.	1	7/064	9	75	640	V.C.	L.C.B.
GYRO	1	7/036	10	24	200	W.E.	L.C.
EMERGENCY WIRELESS.	1	7/036	10	24	120	W.E.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
FORCED LUBRICATION OIL PUMP	2	105	1	61/103	400	540	130	V.C.
AIR COMPRESSORS	2	60	1	37/103	226	385	350	V.C.
F.W. COOLING PUMP	1	40	1	19/083	150	191	284	V.C.
S.W. COOLING PUMP	1	40	1	19/083	150	191	154	V.C.
STEERING GEAR	2	35	1	19/064	133	135	700	V.C.
BALLAST PUMP	1	33	1	19/072	125	157	274	V.C.
FIRE & BILGE PUMPS	2	28	1	19/072	107	157	360	V.C.
OIL FUEL TRANSFER	1	18	1	7/064	69	75	284	V.C.
TURNING GEAR	1	15	1	7/064	59	75	52	V.C.
ENGINE-ROOM VENT FANS	2	9	1	7/064	36	75	280	V.C.
AUX. COOLING PUMPS	2	8.5	1	7/064	35	75	72	V.C.
DOMESTIC F.W. PUMP	1	6	1	7/064	26	75	120	V.C.
WORKSHOP	1	5	1	7/064	21	75	60	V.C.
DOMESTIC REFRIGERATOR	1	5	1	7/064	21	75	106	V.C.
L.O. & F.O. PURIFIERS	2	3	1	7/036	13	24	80	W.E.
ENGINE-ROOM CRANE	1	2.5	1	7/036	11	24	100	W.E.
PURIFIED F.O. SERVICE TANK	2	1.5	1	3/036	7	10	100	W.E.

WIRELESS	1	53			203		
WINCHES	2	42	RING MAIN		164	CONNECTED TO RING MAIN	
WINCHES	4	30			117		
WINCHES	6	30	RING MAIN		117	CONNECTED TO RING MAIN	
WINCHES	7	30	RING MAIN		117	CONNECTED TO RING MAIN	

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 11th Oct. 1944.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 25 FEET

Minimum distance between electric generators or motors and steering compass 22 FEET

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 8 feet from standard compass 6 feet from steering compass.

A cable carrying 2 Ampères LED INTO ~~from~~ standard compass LED INTO ~~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.

LITHGOWS LIMITED.

John M. Fulton Secretary

Builder's Signature.

Date 13/10/44.

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 5/6/44

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 fitted on board under Special Survey tested under working conditions and found satisfactory. All the requirements of the approved plans and M.O.W.T. Specification have been carried out. The materials and workmanship are good.

	3	610	220	704	600	2 C. ENGINE	616	1000
UTILITY	1	15	200	60	1000	1 C. ENGINE	616	1000

Total Capacity of Generators 645 Kilowatts.

SPECIFICATION FEE TO GLASGOW 15 : 5/6 When applied for, 61 : 2/6
The amount of Fee ... £ 61 : 2/6
1/6 OF THIS FEE TO LONDON.
1/6 OF THIS FEE TO GLASGOW.
Travelling Expenses (if any) £ 6 : 6/6 When received, 61 : 10/3
2-10- GLASGOW EXPENSES. 2/11/44

Committee's Minute

Assigned



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