

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

9 SEP 1943

Received at London Office.....

Date of writing Report... 18th August 1943 When handed in at Local Office... 19th July 1943 Port of... GLASGOW

No. in Survey held at... PORT GLASGOW Date, First Survey... 17th July Last Survey... 19th August 1943
Reg. Book. (Number of Visits... 8)

38862 on the... MAHADEVI Tons { Gross..... Net.....

Built at... PORT GLASGOW By whom built... Messrs LITHGOWS LTD Yard No... 984 When built... 1943

Owners... ASIATIC STEAM NAVIGATION CO LTD Port belonging to... LONDON

Electrical Installation fitted by... MESSRS SUNDERLAND FORGE & ENGINEERING CO LTD Contract No... 984 When fitted... 1943

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

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

Heating... Power... 110 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... 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... 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 near 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... Sindamys, 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...

200 Amp. D.P. Knife pattern switch with two 200 Amp fuses

and for each outgoing circuit... 60 or 30 Amp. D.P. change-over switches with fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... Instruments on main switchboard... 2

ammeters... 2 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... 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... 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... W.E.

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

POWER 2 VOLTS.
LIGHTING 3.2 VOLTS.

with insulating compound Yes 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 Yes, 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 MAINS: H.R.B. cable in steel pipe.

MACHINERY SPACE: L.C. + S.W.A. cable clipped to stowwork.
ACCOMMODATION: L.C. 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 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 Fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position MAINS and method of control MAINS.

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 Yes, are they adequately ventilated Yes.

what is the battery capacity in ampere hours 200.

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 Yes.

and where are the controlling switches fitted MAINS, are all fittings suitably ventilated Yes, are all fittings and accessories constructed and installed as per Rule Yes. Searchlight Lamps, No. of 2, whether fixed or portable Yes, are their fittings as per Rule Yes. 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 Yes and vertically Yes. 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. Lightning Conductors, where required are they fitted as per Rule Yes. 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	20	110	182	750	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 GENERATOR	20	1	18/0.83	182	191	60	Y.C.	L.C.
" " 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							
Saloon & Navigation Section Board	1	7/0.64	24	46	340	H.R.B.	In steel pipe.
ENGINEER & CREW RET. SECTION BOARD	1	7/0.64	31	46	128	H.R.B.	In steel pipe.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/0.64	15	46	400	H.R.B.	In steel pipe.
NAVIGATION LIGHTS	1	7/0.36	7	24	90	H.R.B.	In steel pipe.
LIGHTING AND HEATING							
CARGO LIGHTING D.B.	1	7/0.64	29	46	128	H.R.B.	In steel pipe.
CARGO LIGHTING FORWARD	1	7/0.64	13	46	436	H.R.B.	In steel pipe.
CARGO LIGHTING AFT	1	7/0.64	13	46	214	H.R.B.	In steel pipe.
CREW LIGHTING AFT	1	7/0.64	6.9	31	33.2	H.R.B.	In steel pipe.
ENGINE ROOM LIGHTING	1	7/0.64	24	31	30	RUBBER	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
DOMESTIC REFRIGERATOR	1	2	1	7/0.44	17.6	31	140	H.R.B. In steel pipe.

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 21.8.43

COMPASSES.

Minimum distance between electric generators or motors and standard compass Thirty feet.

Minimum distance between electric generators or motors and steering compass Twenty-five feet.

The nearest cables to the compasses are as follows:-

A cable carrying 7 Ampères 8 feet from standard compass 6 feet from steering compass.

A cable carrying 16 Ampères led into feet from standard compass led into 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 LITHGOWS LIMITED course in the case of the steering compass.

John M. Gardiner Secretary Builder's Signature. Date 24/8/43

Is this installation a duplicate of a previous case Yes If so, state name of vessel Shahzada.

Plans. Are approved plans forwarded herewith No If not, state date of approval 14/7/43

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 fitted on board under special survey, tested under working conditions and found satisfactory. The materials and workmanship are good.

Noted J.M.G. 19/9/43

2119 4-9-43

5m.4.18.—Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write or to delay the space for Committee's Minute.)

Total Capacity of Generators 40 Kilowatts.

The amount of Fee ... £ 25: - : When applied for, at cost.

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

J.M. Gardiner Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 7 SEP 1943

Assigned Transmit to Loughborough