

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.

Date of writing Report. 30th June 47 When handed in at Local Office. 5.7.47 Port of Glasgow
No. in Survey held at Glasgow Date, First Survey 23.12.46 Last Survey 5th June 47
Reg. Book. (Number of Visits. 7)
89040 on the M.V. 'SANGOLA' Tons { Gross 8646
Net 5053

Built at Glasgow By whom built Bardley, Curle & Co. Ltd. Yard No. 707 When built 1947
Owners British India Steam Navigation Co. Ltd. Port belonging to London
Electrical Installation fitted by H. M. Speirs & Co. Contract No. 707 When fitted 1947
Is vessel fitted for carrying Petroleum in bulk. - Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. - 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. - 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
Yes, 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. 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. Linoleum, 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.
Triple pole circuit breaker fitted with O.P. & R.C. trips. Aird. pole of CB acting
as equaliser
and for each outgoing circuit. D.P. Switch and Fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule. - Instruments on main switchboard. 3
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. Full Load 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. 15% FL 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. 7 lbs, 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. *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. *Main through forenoon deck l.c. clipped to solid or perforated tray protected with steel cover plate where necessary. Engine Room l.c. clipped to perforated tray or v.r. in conduit. Accommodation l.c. clipped to steel and woodwork or v.r. in conduit.*

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* Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. *Yes* Emergency Supply, state position. *25 Kw. Generator installed in special compartment forenoon deck* and method of control. *Generator controlled by circuit breaker*

Outgoing circuits of Port and Starboard 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. *25 Kw. Generator*

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. *Admiralty pattern magazine fittings in match rooms. wiring l.c. cable in conduit*

and where are the controlling switches fitted. *outside the compartments.* are all fittings suitably ventilated. *Yes*

are all fittings and accessories constructed and installed as per Rule. *Yes* Searchlight Lamps, No. of *1* 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	85	220	386	475	Steam engine.		
EMERGENCY	1	35	220	158	1200	Oil Engine	Oil.	above 150° F.
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	85	2	37/072	386	492	70	VC.	L.C.
" " EQUALISER		1	37/072	-	246	35	VC.	L.C.
EMERGENCY GENERATOR	35	1	19/083	158	191	60	VC.	L.C.
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							
Eng. Room. Aux. DB D	1	7/064	41	46	140	VC.	L.C.
Refrig. Aux. DB E	1	19/044	81	87	160	VC.	L.C.
Eng. Room. Aux. DB F	1	19/064	105	135	140	VC.	L.C.
Mechanical Vent. Ford. DB J	1	19/083	157	191	250	VC.	L.C.
" " " " DB K	1	19/083	147	191	180	VC.	L.C.
Boat Winches. Ford. DB L	1	19/044	64	87	130	VC.	L.C.
" " " " DB M	1	19/044	64	87	130	VC.	L.C.
Supply to Emergency B from Main Bd.	1	19/083	162	191	250	VC.	L.C.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/044	7	31	416	VC.	L.C.
NAVIGATION LIGHTS	1	7/052	10	37	476	VC.	L.C.
LIGHTING AND HEATING							
Engine Room L.A. S.B. G.	1	7/044	20	31	100	VC.	L.C.
Boat Deck L.A. S.B. O	1	19/044	40	87	220	VC.	L.C.
Bridge S.B. P	1	19/083	75	104	180	VC.	L.C.
Upper Deck L.A. S.B. R	1	7/064	56	75	160	VC.	L.C.
" " " " S.B. S	1	7/064	53	75	180	VC.	L.C.
Lower Deck L.A. S.B. T	1	7/082	30	37	180	VC.	L.C.
CIRCUITS FROM EMERGENCY B.I.							
26 HP Bilge Pump X.B.	1	19/083	100	191	350	VC.	L.C.
Boat Deck L.A. DB X.C.	1	7/036	16	24	60	VC.	L.C.
Bridge Deck L.A. DB X.D	1	7/064	39	46	90	VC.	L.C.
Upper Deck L.A. DB X.O1	1	7/036	15	24	250	VC.	L.C.
" " " " Ford. DB X.O2	1	7/036	12	24	20	VC.	L.C.
Bridge Mid L.A. DB X.O3	1	7/036	12	24	290	VC.	L.C.
Wireless X.E.	1	7/044	7	31	120	VC.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
Emergency Bilge Pump	1	26	1	19/083	100	191	350 VC. L.C.
Priming Pump	1	2	1	7/029	9	15	80 VC. L.C.
Fuel Valve Cooling Pump	2	1	1	7/029	5	15	90 VC. L.C.
Eng. Room Vent. Fans	4	3	1	7/046	13	24	160 VC. L.C.
" " " "	2	1.5	1	7/029	7	15	200 VC. L.C.

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.

Thurberis & Co. Electrical Engineers. Date *15th July 1944*
Thurberis - John Pastner.

COMPASSES.

Minimum distance between electric generators or motors and standard compass

60 feet to w/t. Alternator
50 feet - " "

Minimum distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying *.1* Ampères *led into* ~~feet from~~ standard compass *led into* ~~feet from~~ steering compass.

A cable carrying *10* Ampères *12* feet from standard compass *9* 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 *P.*

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted *P.*

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 Barclay, Curle & Co. Ltd.

Technical Manager.

Builder's Signature.

Date *12-11-46*

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 *12-11-46*

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

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.

Total Capacity of Generators *290* Kilowatts.

The amount of Fee ... £ *59* :

When applied for, *26/6/1947*

Travelling Expenses (if any) £ :

When received.

.....19.....

S. G. Friday

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *See Final Entry Report*



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