

Rpt. 13.

No. 132467

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 28 FEB 1951

Date of writing Report 12. 2. 1951. When handed in at Local Office 1951. Part of LIVERPOOL.

No. in Survey held at Bishophead. Date, First Survey 2/10/50 Last Survey 30/1/51. Reg. Book. (No. of Visits 12)

90834 on the S.S. "GENERAL SAN MARTIN" Tons Gross 12759 Net 7408

Built at Bishophead By whom built Cammell Laird & Co. Ltd. Yard No. 1203 When built 1951

Owners Argentine Govt. (Instituto Argentino de Promocion del Petroleo) Part belonging to Buenos Aires

Installation fitted by Cammell Laird & Co. Ltd. When fitted 1951.

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

Plans, have they been submitted and approved. Yes System of Distribution Two wire Voltage of Lighting 110

Heating 220 Power 220 D.C. or A.C., Lighting D.C. Power D.C. If A.C. state frequency -

Prime Movers, has the governing been found as per Rule when full load is thrown on and off. Yes Are turbine emergency governors fitted with a trip switch. Yes Generators, are they compound wound. Yes, and level compounded under working conditions. Yes

if not compound wound state distance between generators. - and from switchboard. - Are the generators 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. - and the results found as per Rule. Yes.

Position of Generators In main engine room.

is the ventilation in way of generators satisfactory. Yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil. Yes Switchboards, where are main switchboards placed In main engine room on special platform.

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil. Yes, what insulation is used for the panels. Synthetic 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 construction as per Rule, including locking of screws and nuts. Yes Description of Main Switchgear for each generator and arrangement of equaliser switches. Triple pole circuit breakers fitted with overload & reverse current trips

and the switch and fuse gear (or circuit breakers) for each outgoing circuit. Double pole circuit breakers or double pole switches and fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule. Yes Instruments on main switchboard. 7 ammeters. 6 voltmeters. - synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection. Yes Earth Testing, state means provided. Good Lamps.

Switches, Circuit Breakers and Fuses, are they as per Rule. Yes are the fuses an Approved Type. Yes make of fuses. L. Wacker (Luban) Ltd. approved per Secy's letter 14/1/49, are all fuses labelled. Yes If circuit breakers are provided for the generators, at what overload do they operate. total at 10% %, and at what current do the reversed current protective devices operate. 10% R.C.

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule. Yes

Cables, are they insulated and protected as per Rule. 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. 6.4 volts, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets. Yes Are all cables insulated and varnished cambric insulated cables sealed at the ends. 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 any 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. - or of the "HR" type. - State how the cables are supported or protected. Main cables supported on main gangway by steel plate. Cables L.C.A. Sub. mains machinery spaces L.C.A. clipped. Accommodation L.C. clipped. All cables protected as necessary.

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

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches 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 Is an alternative supply provided. Yes.

Secondary Batteries, are they constructed and fitted as per Rule. Yes are they adequately ventilated. Yes state battery capacity in ampere hours. General Las Power 57. a.h. Telephone 10. a.h.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes

Are any 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. Flameproof fittings

and where are the controlling switches fitted. outside of spaces. Are all fittings suitably ventilated. Yes.

Searchlight Lamps, No. of 2, whether fixed or portable. fixed, are they of the carbon arc or of the filament type. filament

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 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil. Yes

Are motors coupled to oil fuel transfer and 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 sea 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 an Approved Cartridge Type. Yes make of fuses. L. Beckers (Kuban) Ltd 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

E.S.D., if fitted state maker. Hughes M.S. 218 location of transmitter. Coffordam Eng. Co. and receiver. Coffordam Eng. Co.

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and 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	MAKER.	RATED AT			PRIME MOVER.		
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	2	Sunderland Forge	250	220	1136	1200	St. James' Petrol Engine	Polio Brothers Ltd
	2	do	75	220	341	500	Oil Engine	National Gas & Oil Co.
EMERGENCY ROTARY TRANSFORMER	2	Sunderland Forge	30	110	272	1400	El. Motor.	Sunderland Forge

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	250	23. No. 4	37/103	1136	1224/1632	156	V.C.	L.C.A.
" " EQUALISER		2	37/103	-	816	78	"	"
main Generators	75	23. No. 2	37/103	341	408/816	228	"	"
" " Equalisers.		1	37/103	-	408	114	"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR	47 HP	1	19/083	188	202	138	"	"
" " GENERATOR	30	1	37/083	272	314	120	"	"

MAIN DISTRIBUTION CABLES (to Section Boards, Distribution Fuse Boards, etc.).

DESCRIPTION.	SI.	No.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Kitchen Section Board	51.	1	19/083	30	202	600	V.C. L.C.A.
" " "	51.	1	19/083	10	202	600	"
Off	52.	1	7/064	66	80	170	"
Refing	53	1	19/052	66	110	390	"
Galley	54.	1	19/083	93	202	340	"
Engine Room	55	1	19/052	86	110	130	"
"	56	1	7/064	39	80	190	"
"	57	1	19/052	86	110	180	"
"	58	1	19/052	83	110	240	"
Shore Connection		1	37/083	-	314	130	"
Kitchen Section Board Lightng.	51	1	19/064	49.5	143	600	"
Off	51	1	19/064	51	143	600	"
"	52.	1	19/064	125	143	170	"

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			In the Circuit.	Rule.			
Navigation Lighting alternative fuse	1	7/029	2.5	15	140	V.I.R.	L.C.
Bridge	1	7/064	29	80	140	V.C.	"
Navigation Bridge	1	7/044	27	31	140	V.I.R.	"
Bridge Lightng. (Instruments etc)	23A	7/044	16	31	20	"	"
Boat Deck Room Lightng	24	7/044	19	31	130	"	"
Bridge Deck	25	7/064	48	80	70	V.C.	"
" " " " " " " "	25A	7/064	23	80	80	"	"
Large	26	7/044	16	31	80	V.I.R.	"
Hospital Radiation		7/044	18	31	90	"	"
Pool Deck Lightng Post For.	27	7/064	42	80	104	V.C.	"
" " " " " " " "	27A	7/064	21	80	10	"	"
" " " " " " " "	28	7/064	36	80	154	"	"
" " " " " " " "	28A	7/064	15	80	110	"	"
Off. Acc. Lightng. Post For.	29	7/044	18	31	20	V.I.R.	"
" " " " " " " "	29A	7/044	9	31	120	"	"
" " " " " " " "	210	7/044	27	31	144	"	"
" " " " " " " "	210A	7/044	13	31	116	"	"
" " " " " " " "	211	7/064	35	80	174	V.C.	"
" " " " " " " "	211A	7/064	21	80	116	V.C.	"
Bridge Power	212	7/029	9	15	140	V.I.R.	"
Galley Gear	213	7/044	14	31	30	"	L.C.A.
Engine Room Lightng. Post For.	214	7/064	44	80	80	V.C.	"
" " " " " " " "	214A	7/064	22	80	200	V.C.	"
" " " " " " " "	215	7/064	44	80	220	"	"
" " " " " " " "	215A	7/064	22	80	120	"	"
Gen. Pilot Control		7/044	15	31	320	V.I.R.	"
Radar		7/044	15	31	80	"	L.C.
Knobs		7/044	20	31	130	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Main Circulating Pump	1	120	37/072	446	520	170	V.C. L.C.A.
Ballast	1	37	19/083	148	202	220	"
Gen. Service	1	30	19/064	120	143	220	"
Fire Bilge	1	30	19/064	120	143	200	"
Forward Draught Fans	2	22	19/052	90	110	156	"
Forward Lub. Pump	2	17	7/064	68	80	220	"
O.F. Scavenging	2	14	7/064	56	80	120	"
Exhaustion	2	12	7/064	48	80	100	"
Sanitary	1	11.5	7/064	46	80	120	"
Steering Gear Motor	2	40	19/083	155	202	446	"
Steering Motor	1	6	7/044	25	31	60	V.I.R.
O.F. Pressure Pumps	2	5	7/044	21	31	60	"
O.F. Heaters	-	-	7/029	9	15	80	"
Winching Machine	1	2	7/029	9	15	60	"
Dulling	1	2	7/029	9	15	80	"
Ladle	1	1.5	7/029	7	15	60	"
L.O. Pumps	2	1.5	7/029	6.9	15	56	"
Boiler Room Fans	2	6.3	7/044	26	31	120	"
Engine	2	4	7/044	17	31	140	"
Air Compressor	1	7	7/044	28	31	40	"
Generator S.W. Circ. Pump	1	7	7/044	28	31	180	"
Hot Water	1	5	7/044	21	31	40	"
O.F. Purifiers	2	0.5	3/036	3	10	160	"
Boat Winches	4	6	7/044	25	31	280	" L.C.
Thermostatic Fans	1	4	7/044	17	31	90	"
"	2	3	7/044	13	31	160	"
Supply	1	0.75	3/036	4	10	90	"
Exhaust	4	0.75	3/036	4	10	140	" L.C. or L.C.A.
Refing Compressor	2	5	7/044	21	31	100	" L.C.A.
S.W. Pump	1	1	3/036	5	10	216	"
Ice Cream Plant	1	1.25	3/036	5.5	10	32	"
Water Boilers	1-6 kW	1	7/044	27.25	31	80	"
"	1-3 kW	1	7/044	13.6	31	80	"
"	3-1.2 kW	3	7/029	5.5	15	80	"
Hot Water	1-2.75 kW	1	7/044	12.5	31	90	" L.C.
"	2-1.75 kW	2	7/044	5	31	90	"
"	1-3 kW	1	7/044	13.6	31	90	"

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.
 FOR AND ON BEHALF OF
CAMMELL LAIRD & CO. LIMITED.

Rydie
 TECHNICAL MANAGER
 SHIPBUILDING DEPT.



Electrical Contractors. Date 15/2/51

COMPASSES.

Have the compasses been adjusted under working conditions. Yes

FOR AND ON BEHALF OF
CAMMELL LAIRD & CO. LIMITED.
Rydie
 TECHNICAL MANAGER
 SHIPBUILDING DEPT.

Builder's Signature. Date 15/2/51

Have the foregoing descriptions and schedules been verified and found correct. Yes

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 6/7/50 - 10/8/50

Certificates. Are certificates of test for motors engaged on essential sea-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 Rules for Electrical Equipment. The installation has been tested under working conditions, and found satisfactory. The materials and workmanship are good. In my opinion the electrical equipment is eligible to be accepted for classification.

Notes sent 9/3/51

Total Capacity of Generators. 650 Kilowatts.

The amount of Fee ... £108 5 0 When applied for, 20 FEB 1951
 4/5 due Liverpool £46 12 0 91-15-0
 1/10 due London £10 16 6 11-7-6
 1/10 due Sunderland £50 16 6 11-7-6

See Liv. Rtg. 1-3-51

Travelling Expenses (if any) £ / : 10 : 10 19.

L. Haffner
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute. **LIVERPOOL 27 FEB 1951**

Assigned. *See Minute on J.G. Mch. Rpt.*

2m. 9. 10. - Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

