

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 16 OCT 1941

Date of writing Report 9th Oct. 1941 When handed in at Local Office 9th Oct. 1941 Port of Dundee

No. in Survey held at Dundee Date, First Survey 5th June Last Survey 25th Sept. 1941
Reg. Book. (Number of Visits.....f.g.....)

24530 on the R.F.A. "GRAY RANGER" Tons { Gross 3313.
Net 1506.

Built at Dundee By whom built Caledon S.B. & E. Co. Ltd. Yard No. 390 When built 1941

Owners The Admiralty Port belonging to London

Electrical Installation fitted by Jelford Gries Mackay & Co. Ltd. Contract No. When fitted 1941

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

Have plans been submitted and approved yes System of Distribution Two Wires 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 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 Main Engine Room at forward end

, 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 Main Engine Room adjacent to

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 Black Ebony Sindango, 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 For each Generator

D.P. Overload & Reverse Circuit Breaker with time lags & interlocked Equaliser

Switch

and for each outgoing circuit D.P. Quick-break switch & two S.P. cartridge type fuses

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

ammeters two 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 & cartridge type 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 20/25% are the reversed current

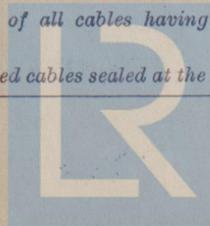
protection devices connected on the pole opposite to the equaliser connection yes, have they been tested under working conditions, and at what current

did they operate At less than 5% full load current 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 4.9V, 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



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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 *no*, if so, are they adequately protected... Are cables in machinery spaces, galleys, laundries, etc., lead covered *yes* or run in conduit... State how the cables are supported and protected. *Admiralty type cables clipped to perforated sheet steel tray, & further protected by steel plates where deemed necessary.*

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 *lead*. 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 *yes*, if so, how are they protected... *Admiralty type fittings in Magazine Flame proof fittings elsewhere.* and where are the controlling switches fitted *Outside dangerous spaces*, are all fittings suitably ventilated *yes*, are all fittings and accessories constructed and installed as per Rule *yes*. Searchlight Lamps, No. of *one*, whether fixed or portable *portable*, are their fittings as per Rule *yes*. 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 *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... 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 *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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	<i>Two</i>	<i>15 kw. each</i>	<i>110</i>	<i>217</i>	<i>400</i>	<i>Steam Engines made by Sunderland Forge Co.</i>		
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 For Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	<i>25</i>	<i>1</i>	<i>37/103</i>	<i>217</i>	<i>240</i>	<i>45</i>		<i>Admiralty Type</i>
" " EQUALISER		<i>1</i>	<i>19/083</i>	-	<i>118</i>	<i>22</i>		" "
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 For Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
Lighting	<i>1</i>	<i>19/083</i>	<i>111</i>	<i>118</i>	<i>150</i>		<i>Lead covered Lt. 19/1/41</i>
Ventilating Fans	<i>1</i>	<i>19/083</i>	<i>131</i>	<i>118</i>	<i>30</i>		<i>Admiralty Type</i>
Engine Room Motors	<i>1</i>	<i>19/064</i>	<i>83</i>	<i>83</i>	<i>30</i>		" "
Boat Winches	<i>1</i>	<i>19/083</i>	<i>168</i>	<i>118</i>	<i>150</i>		" "

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	<i>1</i>	<i>7/064</i>	<i>36</i>	<i>46</i>	<i>108</i>		<i>Admiralty Type</i>
NAVIGATION LIGHTS	<i>1</i>	<i>7/036</i>	<i>12</i>	<i>24</i>	<i>210</i>		" "
LIGHTING AND HEATING							
Police	<i>1</i>	<i>7/029</i>	<i>7</i>	<i>18</i>	<i>150</i>		" "
Engine Room Post	<i>1</i>	<i>7/029</i>	<i>14</i>	<i>18</i>	<i>30</i>		" "
" " " " " " " "	<i>1</i>	<i>7/029</i>	<i>13</i>	<i>18</i>	<i>30</i>		" "
10" Projector	<i>1</i>	<i>7/064</i>	<i>30</i>	<i>46</i>	<i>240</i>		" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Workshops	<i>1</i>	<i>3 1/2</i>	<i>1</i>	<i>7/064</i>	<i>30</i>	<i>31</i>	<i>180</i>	<i>Admiralty Type</i>
Fans	<i>1</i>	<i>5</i>	<i>1</i>	<i>7/064</i>	<i>42</i>	<i>46</i>	<i>210</i>	" "
Blane	<i>1</i>	<i>2</i>	<i>1</i>	<i>7/029</i>	<i>18</i>	<i>18</i>	<i>120</i>	" "
Lub. Oil Pumps	<i>2</i>	<i>each 1/2</i>	<i>1</i>	<i>7/029</i>	<i>12</i>	<i>18</i>	<i>90</i>	" "
Fuel " " " "	<i>2</i>	<i>do.</i>	<i>1</i>	<i>7/029</i>	<i>12</i>	<i>18</i>	<i>90</i>	" "
Vapour Extraction Fan	<i>1</i>	<i>1 1/2</i>	<i>1</i>	<i>7/029</i>	<i>15</i>	<i>18</i>	<i>90</i>	" "
Fuel priming pumps	<i>1</i>	<i>2 1/2</i>	<i>1</i>	<i>7/036</i>	<i>22</i>	<i>24</i>	<i>90</i>	" "

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.

Messrs Telford Lewis McEckay & Co. Electrical Engineers. Date 9/10/41.
 11 Fairley St, Glasgow.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 66 ft.

Minimum distance between electric generators or motors and steering compass 58 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 12 Ampères 24 feet from standard compass 20 feet from steering compass.

A cable carrying 25 Ampères one foot from standard compass one foot 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 all course in the case of the

standard compass, and nil degrees on all course in the case of the steering compass.

FOR AND ON BEHALF OF THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.

D. H. [Signature] Builder's Signature. Date

Is this installation a duplicate of a previous case. yes If so, state name of vessel R.F.A. "Gold Ranger"

Plans. Are approved plans forwarded herewith. yes If not, state date of approval.

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.)

This Installation has been efficiently fitted on board, in accordance with the Rules, the materials & workmanship being sound & good. The wiring of the vessel has been carried out in a satisfactory manner, & in accordance with the approved plans. On completion, the installation was tried out under full load & working conditions & it was found satisfactory in all respects.

Noted
 J.H.
 21/10/41.

Total Capacity of Generators 50 Kilowatts.

The amount of Fee ... £ 27 : 10 :
 4/5th Dum. £ 22-0-0
 1/5th glo. £ 5-10-0
 Travelling Expenses (if any) £ : :
 When applied for, 30/9/1941.
 When received, 10 Oct 41.

John Houston
 Surveyor to Lloyd's Register of Shipping.

GLASGOW 14 OCT 1941

Committee's Minute

SEE ACCOMPANYING MACHINERY REPORT.

Assigned

5m. 4.30.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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