

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

12 FEB 1942

Received at London Office

Date of writing Report. 26th Jan^y 1942 When handed in at Local Office. 5th Feb^y 1942 Port of DundeeNo. in Survey held at Dundee Date, First Survey. 3rd Oct^r 1941 Last Survey. 23rd Jan^y 1942
Reg. Book. (Number of Visits. 17)24538 on the RFA "GREEN RANGER" Tons { Gross. 331.3...
Net. 1506...

Built at Dundee By whom built. Baledon S.B. & E. Co. Ltd. Yard No. 391 When built. 1942

Owners. The Admiralty Port belonging to London

Electrical Installation fitted by Jelford Grier Mackay & Co. Ltd. Contract No. When fitted. 1942

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

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

Heating. yes Power. 110 Direct or Alternating Current, Lighting. D.C. Power. D.C. If Alternating Current state frequency. Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off. yes Are turbine emergency governors fitted with a

trip switch as per Rule. yes 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 Biscuit Breaker, with time lags & interlocked Equal-

izer 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. Two

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, are the reversed current protection devices connected on the pole opposite to the equaliser connection. yes, have they been tested under working conditions. yes. 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 4.7 ✓, 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 exposed ends. ✓ 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 trays, & 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 effectively 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. ✓

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 Room 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. ✓

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. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type. 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 megger 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	<u>Two</u>	<u>Each 25</u>	<u>110</u>	<u>217</u>	<u>400</u>	<u>Steam Engines made by Sunders.</u>		
						<u>land tanks</u>		
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 ...	<u>25</u>	<u>1</u>	<u>37/103</u>	<u>217</u>	<u>240</u>	<u>45</u>	<u>Admiralty Type</u>	
" " EQUALISER ...		<u>1</u>	<u>19/083</u>		<u>118</u>	<u>22</u>	<u>"</u>	
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR ...								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
<u>Lighting</u>	<u>1</u>	<u>19/083</u>	<u>111</u>	<u>118</u>	<u>150</u>	<u>Admiralty Type</u>		
<u>Ventilating fans</u>	<u>1</u>	<u>19/083</u>	<u>131</u>	<u>118</u>	<u>30</u>	<u>"</u>		
<u>Engine Room Motors</u>	<u>1</u>	<u>19/064</u>	<u>83</u>	<u>83</u>	<u>30</u>	<u>"</u>		
<u>Boat Winches</u>	<u>1</u>	<u>19/083</u>	<u>168</u>	<u>118</u>	<u>150</u>	<u>"</u>		

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	<u>1</u>	<u>7/064</u>	<u>36</u>	<u>46</u>	<u>108</u>	<u>Admiralty Type</u>		
NAVIGATION LIGHTS ...	<u>1</u>	<u>7/036</u>	<u>12</u>	<u>24</u>	<u>210</u>	<u>"</u>		
LIGHTING AND HEATING ...	<u>1</u>	<u>7/029</u>	<u>7</u>	<u>18</u>	<u>130</u>	<u>"</u>		
<u>Police</u>	<u>1</u>	<u>7/029</u>	<u>14</u>	<u>18</u>	<u>30</u>	<u>"</u>		
<u>Engine Room Port</u>	<u>1</u>	<u>7/029</u>	<u>13</u>	<u>18</u>	<u>30</u>	<u>"</u>		
<u>" Starboard</u>	<u>1</u>	<u>7/029</u>	<u>13</u>	<u>18</u>	<u>30</u>	<u>"</u>		
<u>10" Projector</u>	<u>1</u>	<u>7/064</u>	<u>30</u>	<u>46</u>	<u>240</u>	<u>"</u>		

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
<u>Workshops</u>	<u>1</u>	<u>3 1/2</u>	<u>1</u>	<u>7/044</u>	<u>30</u>	<u>31</u>	<u>180</u>	<u>Admiralty Type</u>
<u>Fans</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>7/064</u>	<u>42</u>	<u>46</u>	<u>210</u>	<u>"</u>
<u>Crane</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>7/029</u>	<u>18</u>	<u>18</u>	<u>120</u>	<u>"</u>
<u>Lub. Oil Purifier</u>	<u>2</u>	<u>Each 1 1/2</u>	<u>1</u>	<u>7/029</u>	<u>12</u>	<u>18</u>	<u>90</u>	<u>"</u>
<u>Fuel</u>	<u>2</u>	<u>do</u>	<u>1</u>	<u>7/029</u>	<u>12</u>	<u>18</u>	<u>90</u>	<u>"</u>
<u>Vapour Extraction fan</u>	<u>1</u>	<u>1 1/2</u>	<u>1</u>	<u>7/029</u>	<u>15</u>	<u>18</u>	<u>90</u>	<u>"</u>
<u>Fuel Priming Pump</u>	<u>1</u>	<u>2 1/2</u>	<u>1</u>	<u>7/036</u>	<u>22</u>	<u>24</u>	<u>90</u>	<u>"</u>

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.

TELFORD, GRIER, MACKAY & CO. LTD.

E. A. Grier DIRECTOR

Electrical Engineers.

Date 28 Jan 42

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 30 feet from steering compass.

A cable carrying 1/4 Ampères one feet from standard compass one 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 all course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.

Builder's Signature.

Date 5th Feb 1942

Henry Main

Managing Director.

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

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.

Total Capacity of Generators 50 Kilowatts.

The amount of Fee ... £ 24 : 10 : 0 When applied for, 5th Feb 1942.
4/6th Dec. £ 22-0-0
1/5th Feb. £ 5-10-0
Travelling Expenses (if any) £ : : When received, 19.....

John Houston
Surveyor to Lloyd's Register of Shipping.

GLASGOW 10 FEB 1942

Committee's Minute

SEE ACCOMPANYING MACHINERY REPORT.

Assigned