

Rpt. 13.

No. 20458

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

26 OCT 1950

Date of writing Report 12th Sept. 1950 When handed in at Local Office 19 Port of Southampton

No. in Survey held at Southampton Date, First Survey 20th May '48 Last Survey 16th Aug. 1950
Reg. Book. (No. of Visits)

70354 on the T.E.V. "NEW AUSTRALIA" Tons { Gross 22424
Net 12876

Built at Newcastle By whom built Vickers-Armstrongs Ltd. Yard No. 665 When built 1931

Owners Ministry of Transport Port belonging to London

Installation fitted by John J. Thompson & Co. Ltd, Southampton When fitted 1950

Is vessel equipped for carrying Petroleum in bulk No 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 insulated Voltage of Lighting 220

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 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

Positive 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 Yes and the results found as per Rule Yes

Position of Generators Auxiliary engine room ('F' Deck)

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 Auxiliary engine

room ('F' Deck)

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 Slate, if of synthetic insulating

material is it an Approved Type, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as

per Rule Yes 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 3-pole circuit-breaker with of trip in

positive and negative poles, R/C trip and preference relay, the third

pole used for equaliser connection

and the switch and fuse gear (or circuit breakers) for each outgoing circuit 2-pole circuit-breaker with of trip

on each pole, with or without shunt trip coil operated by preference relay

or 2-pole knife switch and fuse in each pole

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 27

ammeters 2 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 Earth

lamps coupled to earth with circuit and fuses

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes

make of fuses G.E.C. or "arist" are all fuses labelled Yes If circuit breakers are provided for the generators, at what

overload do they operate T/L 10-15 secs, and at what current do the reversed current protective devices operate 4000

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% are the ends of all cables having a sectional

area of 0.01 square inch and above provided with soldering sockets Yes Are all paper 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 No, if so, are they

adequately protected Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit Yes

or of the "HR" type Yes State how the cables are supported or protected L.C.B. cable on H.R. cable

supported to surface on tray and protected as necessary: H.R. cable supported to

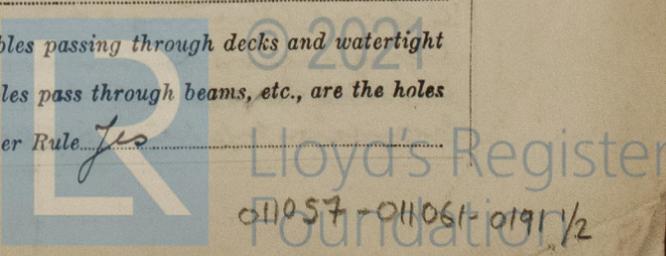
wood grounds or run in pipe: L.C.B. cable supported to wood grounds:

Run cable in wood casing and capping

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 Emergency generator and battery in separate compartments on 'C' deck aft
 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 300

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 ---
 and where are the controlling switches fitted --- Are all fittings suitably ventilated Yes

Searchlight Lamps, No. of None, whether fixed or portable --- are they of the carbon arc or of the filament type ---
 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 None 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 --- are all fuses of an Approved Cartridge Type --- make of fuse --- Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships --- Are the cables lead covered as per Rule ---

E.S.D., if fitted state maker Marconi location of transmitter DB Tank Frame 15 1/2 and receiver DB Tank Frame 16 1/2
 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 See accompanying Booklet of Test Results (No. 9)

PARTICULARS OF GENERATING PLANT.

| DESCRIPTION OF GENERATOR. | No. of | MAKER. | RATED AT | | | | TYPE. | PRIME MOVER. | MAKER. |
|------------------------------|--------|----------|--------------------------|--------|----------|----------------|-------------|------------------|--------|
| | | | Kilowatts per Generator. | Volts. | Ampères. | Revs. per Min. | | | |
| MAIN | 4 | G. E. C. | 750 | 220 | 3400 | 750 | Synchronous | Brush & Chalmers | |
| EMERGENCY ROTARY TRANSFORMER | 1 | G. E. C. | 45 | 220 | 204 | 900 | Drum | Fiat | |

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 GENERATORS | 4 x 750 | 6 | 9/1103 | 3400 | 6 x 782 | 768 | VC | LCB |
| " EQUALISER | | 3 | 9/1103 | - | 3 x 782 | 84 | VC | LCB |
| EMERGENCY GENERATOR | 45 | 1 | 37/072 | 204 | 260 | 30 | VC | LCB |

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

| DESCRIPTION | No. in Parallel per Pole. | Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm. | In the Circuit. | Rule. | APPROX. LENGTH (lead plus return feet). | INSULATION. | PROTECTIVE COVERING. |
|---|---------------------------|--|-----------------|---------|---|-------------|----------------------|
| From main to Propulsion Dist. Panel 1 fwd. dwd. | 2 | 6/1093 | 800 | 2 x 492 | 420 | VC | LCB |
| Propulsion Port Panel 3 fwd. dwd. | 2 | 6/1093 | 800 | 2 x 492 | 420 | VC | LCB |
| Propulsion Standby Panel 2 fwd. dwd. | 2 | 6/1093 | 800 | 2 x 492 | 420 | VC | LCB |
| Emergency Switchboard | 1 | 37/093 | 204 | 363 | 600 | VC | LCB |
| Aux. dwd. Supply Panel 8 fwd. dwd. | 2 | 9/1093 | 1169 | 2 x 660 | 310 | VC | LCB |
| Aux. dwd. Supply Panel 9 fwd. dwd. | 2 | 9/1093 | 731 | 2 x 660 | 310 | VC | LCB |
| 'A' dwd. (Heating & Small Power) | 2 | 6/1093 | 848 | 2 x 492 | 345 | VC | LCB (1' Deck) |
| 'B' dwd. (Heating & Small Power) | 2 | 6/1093 | 862 | 2 x 492 | 330 | VC | LCB (1' Deck) |
| 'C' dwd. (Heating & Small Power) | 2 | 6/1093 | 873 | 2 x 492 | 420 | VC | LCB (1' Deck) |
| Refrigeration Switchboard | 2 | 6/1103 | 652 | 2 x 572 | 160 | VC | LCB (1' Deck) |
| Dinning Saloon Htg. S.B. FP1 | 1 | 37/072 | 218 | 260 | 525 | VC | LCB (1' Deck) |
| Propulsion Htg. Htg. S.B. ERP2 | 1 | 19/064 | 135 | 143 | 80 | VC | LCB (1' Deck) |

Main Distribution Cables (Continued)

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

| DESCRIPTION. | 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. | | | |
| Fwd. Ventilation dwd. VP1 | 1 | 37/103 | 417 | 408/668 | 405 | VC | LCB (1' Deck) |
| Mid. Ventilation dwd. VP2 | 1 | 37/072 | 223 | 260 | 435 | VC | LCB (1' Deck) |
| Aft Ventilation dwd. VP3 | 1 | 37/103 | 270 | 408 | 540 | VC | LCB (1' Deck) |
| Captain's & Deck dwd. | 2 | 6/1103 | 773 | 2 x 572 | 636 | VC | LCB (1' Deck) |
| Wind dwd. | 2 | 9/1103 | 1474 | 2 x 782 | 1920 | VC | LCB (1' Deck) |
| Boat Winch dwd. MPI | 1 | 37/083 | 816 | 314 | 390 | VC | LCB (1' Deck) |
| Midship Lift dwd. | 1 | 19/064 | 35.5 | 143 | 800 | VC | LCB (1' Deck) |
| Galley dwd. | 2 | 9/1103 | 853 | 2 x 782 | 660 | VC | LCB (1' Deck) |
| Fwd. Galley Range | 1 | 9/1103 | 468 | 782 | 720 | VC | LCB (1' Deck) |
| Creed. Galley Range | 1 | 37/093 | 227 | 363 | 1050 | VC | LCB (1' Deck) |
| Mid. Galley Range | 1 | 9/1103 | 468 | 782 | 720 | VC | LCB (1' Deck) |
| Barney dwd. | 1 | 37/103 | 292 | 408 | 660 | VC | LCB (1' Deck) |
| Lighting S.B. AJ1 | 1 | 37/072 | 152 | 260 | 345 | VC | LCB (1' Deck) |
| Lighting S.B. BJ1 | 1 | 37/083 | 203 | 314 | 330 | VC | LCB (1' Deck) |
| Lighting S.B. CJ1 | 1 | 37/083 | 219 | 314 | 420 | VC | LCB (1' Deck) |
| Lighting S.B. WJ2 | 1 | 6/1103 | 223 | 572 | 345 | VC | LCB (1' Deck) |
| Lighting S.B. DJ1 | 1 | 9/1103 | 339 | 782 | 690 | VC | LCB (1' Deck) |
| Lighting S.B. TS1 | 1 | 19/083 | 71 | 202 | 330 | VC | LCB (1' Deck) |
| Lighting S.B. KJ1 | 1 | 19/064 | 20 | 143 | 795 | VC | LCB (Prom. Deck) |
| Lighting S.B. QS1 | 1 | 19/052 | 5.4 | 110 | 30 | VC | LCB (1' Deck) |
| Lighting S.B. HS1 | 1 | 19/052 | 32.3 | 110 | 30 | VC | LCB (1' Deck) |
| Engine Room Htg. S.B. ERJ1 | 1 | 19/064 | 55.1 | 143 | 30 | VC | LCB (1' Deck) |
| Engine Room Htg. S.B. ERJ2 | 1 | 19/083 | 49.4 | 202 | 30 | VC | LCB (1' Deck) |
| Air Pumps & Water Pumps S.B. ERP1 | 1 | 7/064 | 34 | 46 | 9 | VIR | LCB (1' Deck) |
| Heating up Htg. & Boiler Htg. S.B. Aft | 1 | 19/083 | 144 | 202 | | VC | LCB (1' Deck) |
| Boiler Htg. S.B. & W.P. Htg. S.B. | 1 | 19/083 | 57 | 202 | | VC | LCB (1' Deck) |
| Emergency Boat Winch dwd. EP2 | 1 | 37/072 | 300 | 260 | 810 | VC | LCB (1' Deck) |

MOTOR CABLES.

| ALL IMPORTANT MOTORS TO BE ENUMERATED. | No. | B.H.P. | | | | | | |
|--|-----|--------|---|--------|------|----------------|-----|---------------------------|
| Main Air Pumps | 2 | 160 | 1 | 9/1093 | 600 | 660 | VC | LCB |
| Aux. Air Pumps | 3 | 65 | 1 | 37/083 | 248 | 314 | VC | LCB |
| Main Extraction Pumps | 2 | 25 | 1 | 19/064 | 95 | 143 | VC | LCB (Off fwd. dwd.) |
| Aux. Extraction Pumps | 3 | 7 | 1 | 7/064 | 29 | 46 | VIR | LCB |
| Bridge Pumps | 2 | 24 | 1 | 19/064 | 94 | 143 | VC | LCB (Off fwd. dwd.) |
| Ballast Pump | 1 | 24 | 1 | 19/064 | 94 | 143 | VC | LCB (Off fwd. dwd.) |
| General Service Pump | 1 | 24 | 1 | 19/064 | 94 | 143 | VC | LCB (Off fwd. dwd.) |
| Drum Lub. Pumps | 2 | 6.5 | 1 | 7/044 | 27 | 31 | VIR | HR (Off fwd. dwd.) |
| O. & S. Transfer Pumps | 2 | 27 | 1 | 19/064 | 110 | 143 | VC | LCB (1' Off fwd. dwd.) |
| Drum Dragnet Fans | 8 | 17 | 1 | 19/064 | 69.5 | 143 | VC | LCB (4' Off fwd. dwd.) |
| Propeller Motor Fans | 4 | 21 | 1 | 19/064 | 82 | 143 | VC | LCB |
| Engine Room Vent. Fans | 8 | 14 | 1 | 19/052 | 56 | 110 | VC | LCB (4' Off fwd. dwd.) |
| Steering Gear Motors | 2 | 42 | 1 | 19/083 | 163 | 202 | VC | LCB |
| Secondary Steering Gear | 1 | 7.5 | 1 | 7/064 | 20 | 46 | VIR | HR (Off fwd. dwd.) |
| Emergency Bridge Pump | 1 | 16 | 1 | 19/064 | 63 | 143 | VC | LCB (Off fwd. dwd.) |
| Sprinkler Pump | 1 | 56 | 1 | 37/072 | 213 | 260 | VC | LCB |
| Wireless | 1 | 150 | 1 | 9/1093 | 550 | 660 | VC | LCB (Off Wind dwd.) |
| Captain's | 4 | 75 | 1 | 37/103 | 244 | 408 | VC | LCB (2' Off Captain dwd.) |
| Cargo Winches | 4 | 24 | 1 | 19/083 | 92 | 202 | VC | LCB (Off Captain dwd.) |
| Prop. Motor Running Gear | 4 | 6 | 1 | 7/044 | 26 | 31 | VIR | LC |
| Wainright Air Pumps | 2 | 5 | 1 | 7/044 | 21 | 31 | VIR | HR (Off fwd. dwd.) |
| Wainright Air Compressor | 1 | 7 | 1 | 7/044 | 28 | 31 | VIR | HR (Off fwd. dwd.) |
| Boat Winches | 8 | 15 | 1 | 19/064 | 59 | 143 | VC | LCB (Off dwd. MPI) |
| Axon. Ladder Winches | 4 | 7 | 1 | 7/064 | 24 | 46 | VIR | HR (Off dwd. MPI) |
| Lantern Pumps | 2 | 24 | 1 | 19/064 | 92 | 143 | VC | LCB (Off fwd. dwd.) |
| Sewage Compressor | 2 | 50 | 1 | 37/072 | 191 | 260 | VC | LCB (Off fwd. dwd.) |
| Fresh Water Pumps | 2 | 7 | 1 | 7/064 | 32 | 46 | VIR | HR (Off fwd. dwd.) |
| Emergency Boat Winches | 6 | 12.5 | 1 | 19/064 | 50 | 143 | VC | LCB (Off dwd. EP2) |
| Accumulator Vent. S.B. 3 x 3 3/4 | | | | | | 16, 14, 13, 11 | | |
| 6 x 3 1/4, 2 x 3, 4 x 2 1/2, 1 x 2, 3 x 1 1/2, 5 x 1 1/4 | | | | | | 9.8, 7.6, 24 | | |
| 8 x 1, 2 x 0.84, 6 x 0.4, 3 x 1/2, 1 x 1/4 (119) | | | | | | 5, 2.8, 2 | | |

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.



Electrical Contractors. Date

COMPASSES.

Have the compasses been adjusted under working conditions. *Yes*

JOHN I. THORNYCROFT & CO. LIMITED,

J. P. Kilian

Builder's Signature. Date *27th SEPT 1950*

GENERAL MANAGER, SOUTHAMPTON.

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. *Yes* If not, state date of approval

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith. *Concluded to have been supplied with original report in 1931*

General Remarks. (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) *The new electrical installation has been fitted under special survey in accordance with the approved plans and the drawings letters with minor departures from the former constituting acceptable equivalents thereto and according with the Rules. The materials used and the workmanship are good. For particulars of repairs effected to items of original installation retained in the vessel please see accompanying Rpt. 9.*

The insulation resistance of all circuits and apparatus was measured on completion and found good and all equipment tried under working conditions at sea and found satisfactory. The electrical equipment of this vessel is now in our opinion suitable for a classed ship.

NOTE. VESSEL FITTED WITH RADAR

Total Capacity of Generators *3045* Kilowatts.

The amount of Fee ... *4/6* £133 : 0 : When applied for,

Travelling Expenses (if any) £ 38 : 18 : When received,

D. J. Harrison and J. H. Tibell.
Surveyors to Lloyd's Register of Shipping.

FRI. 19 JAN 1951

Committee's Minute

Assigned

Em. 9.40.—Transfer Form AND PRINTED IN ENGLAND. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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