



AIRCRAFT
MAINTENANCE MANUAL

GENERATOR CONTROL UNIT (GCU) - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to adjust and test the Main-Generator-Control Unit (Main GCU).
- B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

<i>TASK NUMBER</i>	<i>DESCRIPTION</i>	<i>EFFECTIVITY</i>
24-31-02-820-802-A	MAIN GCU VOLTAGE - ADJUSTMENT	ALL



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 24-31-02-820-802-A

EFFECTIVITY: ALL

2. MAIN GCU VOLTAGE - ADJUSTMENT

A. General

- (1) The main GCU controls the main-generator field current and keeps the voltage output at 28.5 ± 0.2 V DC under all load and speed conditions specified for the main generators, when they do not operate in parallel with other channels. When they operate in parallel with other channels, the GCU can adjust the voltage down up to 1.5 V DC, to compensate for feeder impedance and regulator tolerance.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM SDS 31-41-00/1	
AMM TASK 71-00-01-910-801-A/200	ENGINE START PROCEDURE (NORMAL)
AMM TASK 71-00-01-910-804-A/200	ENGINE STOP PROCEDURE

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223	223ELW	Cockpit (Main GCUs 1 and 3)
224	224ERW	Cockpit (Main GCUs 2 and 4)

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	DC voltmeter, range: 0-50 V DC, with four (4) digits of resolution and a minimum tolerance of $\pm 0.1\%$, 1000 Ohms per volt or more	To do the check of the main GCU voltage	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-002-A

- (1) Open access panel 223ELW or 224ERW ([AMM MPP 06-41-03/100](#)).
 - (2) Loosen the screw which attaches the cap of the voltage adjustment potentiometer.
 - (3) Turn the cap to one side to get access to the voltage adjustment potentiometer.
 - (4) Install the voltmeter to the test jack, on the top of the main GCU. Put the voltmeter positive wire into the red jack and the negative wire into the black jack.
- NOTE:** Do not use the airframe as a reference point for the voltmeter as this will result in adjustment error.
- (5) Make sure that the BATT 1 and BATT 2 switches, on the electrical panel, on the overhead panel, are set at AUTO.

J. Adjustment Procedure ([Figure 501](#))

SUBTASK 820-002-A

- (1) Adjust as follows:
 - (a) Set the GEN 1, 2, 3 and 4 pushbuttons, on the electrical panel, on the overhead panel, to OFF.
Result:
1 On the GEN 1, 2, 3 and 4 pushbuttons, the striped bar comes on.
 - (b) Set the APU GEN pushbutton, on the electrical panel, on the overhead panel, to OFF.
Result:
1 On the APU GEN pushbutton, the striped bar comes on.
 - (c) Start the engine ([AMM TASK 71-00-01-910-801-A/200](#)) related to the main GCU in adjustment (LH engine for main GCUs 1 and 3 or RH engine for main GCUs 2 and 4).
Result:
1 The EICAS display shows the GEN () OFF BUS caution messages.
2 The master CAUTION lights flash.
 - (d) Push a master CAUTION light.
Result:
1 The master CAUTION lights go off.
 - (e) Set MFD 1 (or 2) to ELEC page ([AMM SDS 31-41-00/1](#)).
Result:
1 On the ELEC page, the GEN () voltage value is boxed in amber.

CAUTION: BEFORE YOU CONNECT THE MAIN GENERATOR TO THE BUS BAR, MAKE SURE THAT THE MAIN GENERATOR OUTPUT VOLTAGE IS LESS THAN 30 V DC. IF THE VOLTAGE IS HIGHER, REPLACE THE GCU.

NOTE: Only the generator the voltage of which is in adjustment must be switched to the bus bar to prevent adjustment error.

- (f) Set the related GEN () pushbutton to ON.

Result:

- 1 On the related GEN () pushbutton, the striped bar goes off.
- 2 On the EICAS display, the related GEN () OFF BUS caution message goes out of view.
- 3 On the ELEC page, the related GEN () voltage and current values are boxed in green.

CAUTION: ONLY ADJUST THE MAIN GCU () VOLTAGE WITH THE POTENTIOMETER, IF THE RELATED VOLTAGE VALUE ON THE TEST JACKS IS NOT 28.5 ± 0.2 V DC.

- (g) Adjust the related main GCU () potentiometer to 28.50 ± 0.05 V DC.

K. Follow-on

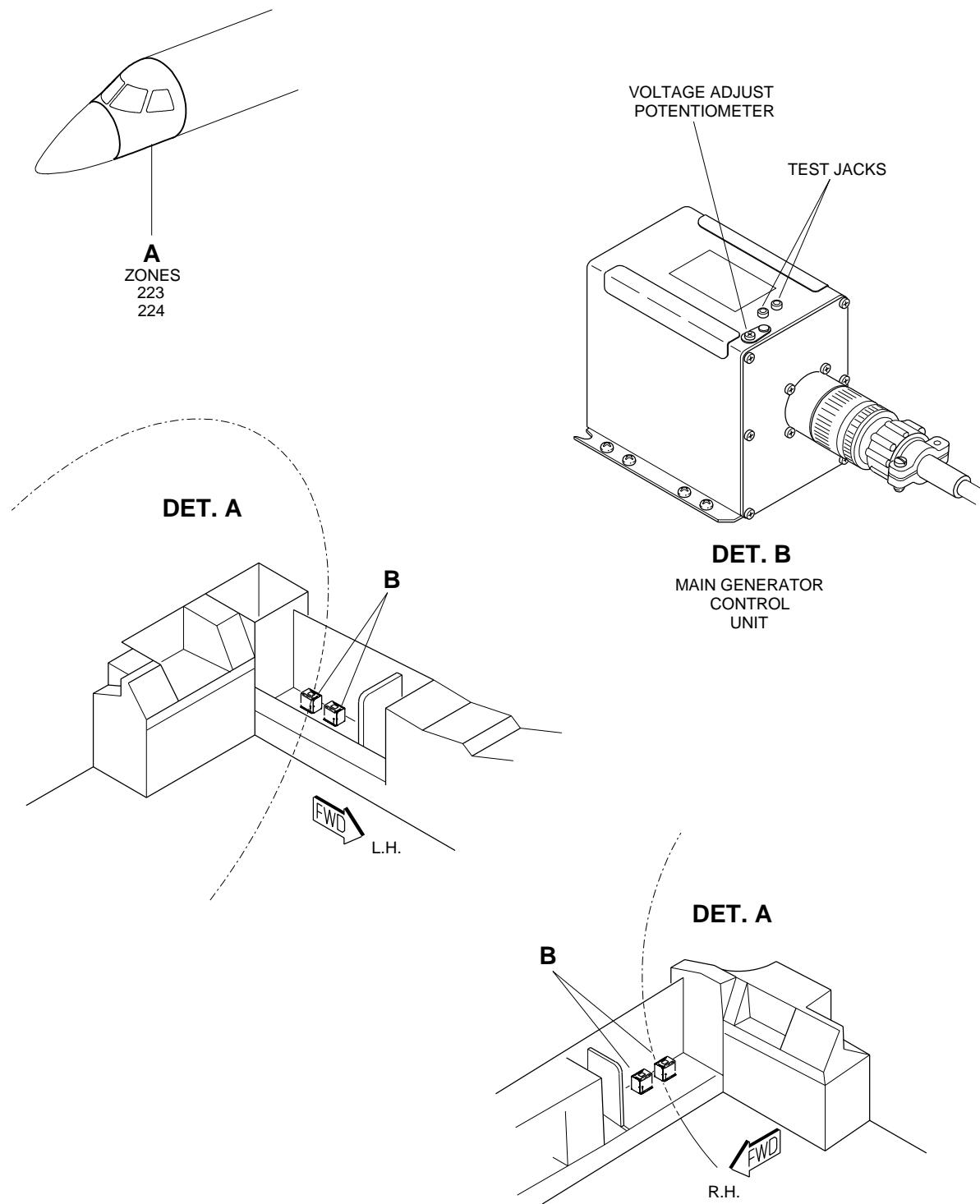
SUBTASK 842-002-A

- (1) Set all GEN pushbuttons to ON.
- (2) Stop the engine ([AMM TASK 71-00-01-910-804-A/200](#)).
- (3) Set the BATT 1 and BATT 2 switches to OFF.

CAUTION: IF YOU MUST REPLACE THE SCREW OF THE POTENTIOMETER ACCESS CAP, MAKE SURE THAT THE NEW SCREW OBEYS THE SPECIFIED LENGTH ACCURATELY (REFER TO THE LAST REVISION OF THE COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR DC GENERATOR CONTROL UNIT, PART NUMBER 51545-001B, BY LUCAS AEROSPACE, AURORA).

- (4) Tighten the screw of the potentiometer access cap.
- (5) Close access panel 223ELW or 224ERW ([AMM MPP 06-41-03/100](#)).

EFFECTIVITY: ALL
 Main GCU Voltage - Adjustment
 Figure 501



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