

## GENERATOR CONTROL UNIT (GCU) - REMOVAL/INSTALLATION

*EFFECTIVITY: ALL*

### 1. General

- A. This section gives the procedure to remove/install the main generator control units (GCU) and the procedure to connect/disconnect the Main GCU Troubleshooting Software.
- B. The main GCU 1 and main GCU 3 of the main generation system location are on the left side of the cockpit.
- C. The main GCU 2 and main GCU 4 of the main generation system location are on the right side of the cockpit.
- D. You can get access to main GCU 1 and main GCU 3 through access panel 223ELW on the left console of the cockpit.
- E. You can get access to main GCU 2 and main GCU 4 through access panel 224ERW on the right console of the cockpit.
- F. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	DESCRIPTION	EFFECTIVITY
24-31-02-000-801-A	MAIN GENERATOR CONTROL UNIT (GCU) - REMOVAL	ALL
24-31-02-400-801-A	MAIN GENERATOR CONTROL UNIT (GCU) - INSTALLATION	ALL
24-31-02-080-801-A	MAIN GCU TROUBLESHOOTING SOFTWARE - DISCONNECTION	ALL
24-31-02-480-801-A	MAIN GCU TROUBLESHOOTING SOFTWARE - CONNECTION	ALL

TASK 24-31-02-000-801-A

EFFECTIVITY: ALL

## 2. MAIN GENERATOR CONTROL UNIT (GCU) - REMOVAL

### A. General

(1) This task gives the procedure to remove the main GCU's.

### B. References

REFERENCE	DESIGNATION
<a href="#">AMM MPP 06-41-03/100</a>	- COMPONENT LOCATION

### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223	223ELW	Cockpit - LH console
224	224ERW	Cockpit - RH console

### D. Tools and Equipment

Not Applicable

### 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 - LH console
1	Does the task	Cockpit - RH console

### I. Preparation

#### SUBTASK 841-002-A

- (1) Make sure that the GPU pushbutton, on the electrical panel, located on the overhead panel, is set at OFF.
- (2) Attach a DO-NOT-SET-ON tag to the GPU pushbutton.
- (3) Make sure that the BATT 1 and BATT 2 switches, on the electrical panel, located on the overhead panel, are set at OFF.
- (4) Attach a DO-NOT-SET-AUTO tag to the BATT 1 and BATT 2 switches.

- (5) Set the BACKUP pushbutton, on the electrical panel, located on the overhead panel, to OFF.
- (6) Attach a DO-NOT-SET-AUTO tag to the BACKUP pushbutton.
- (7) Make sure that the engines are not in operation.
- (8) Open access panel 223ELW to get access to main GCU 1 or/and main GCU 3 ( [AMM MPP 06-41-03/100](#)).
- (9) Open access panel 224ERW to get access to main GCU 2 or/and main GCU 4 ( [AMM MPP 06-41-03/100](#)).

J. Removal ([Figure 401](#))

*SUBTASK 020-002-A*

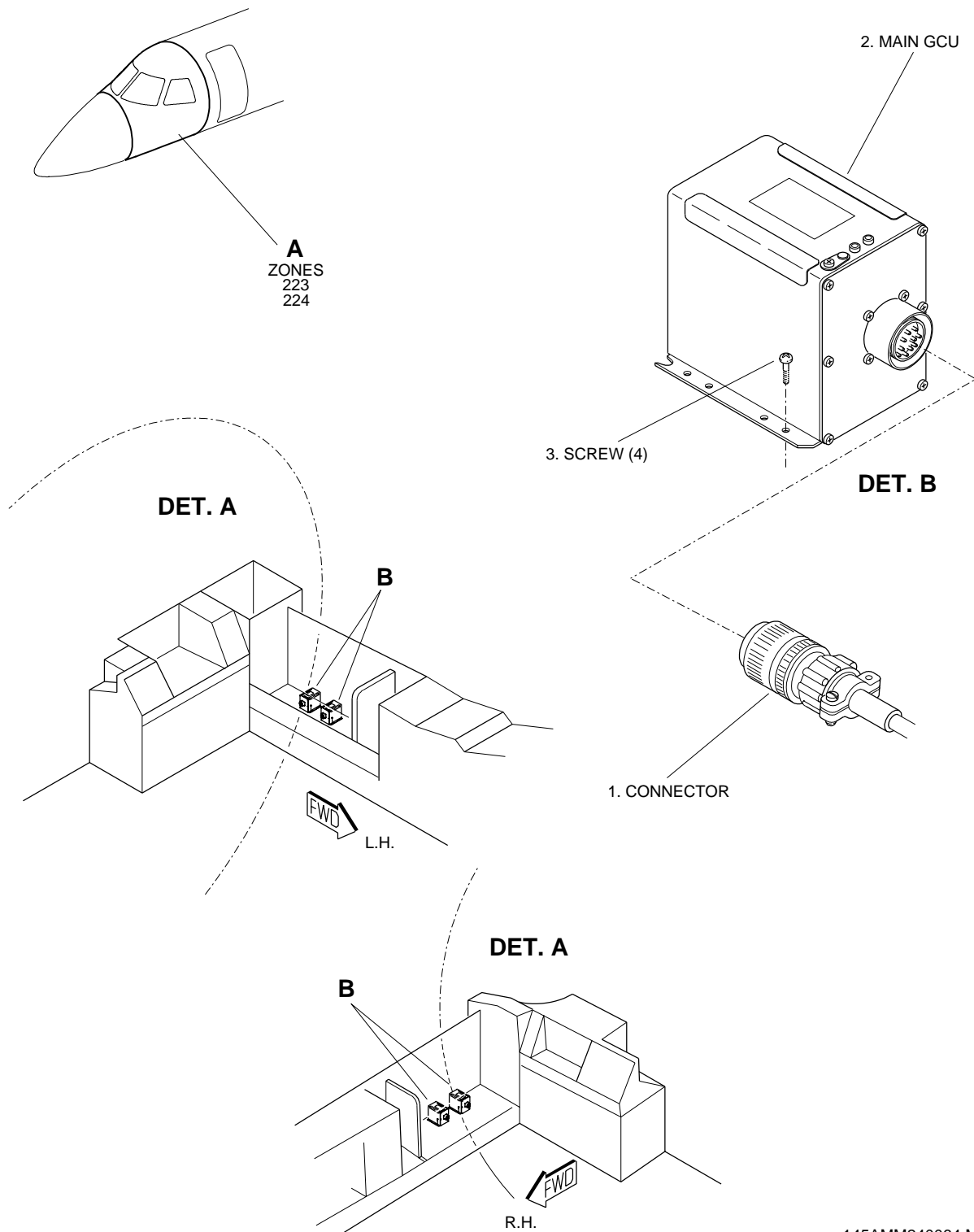
**CAUTION:** OBEY THE INSTRUCTIONS WRITTEN ON THE GCU PLACARD. DO NOT CONNECT OR DISCONNECT THE GCU UNIT WHILE POWER IS APPLIED. IF YOU DO, DAMAGE TO THE ELECTRICAL SYSTEM OR TO THE EQUIPMENT CAN OCCUR.

- (1) Disconnect the connector (1) from the main GCU (2).
- (2) Remove the screws (3).
- (3) Remove the main GCU (2).

EFFECTIVITY: ALL

Main Generator Control Unit (GCU) - Removal/Installation

Figure 401



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TASK 24-31-02-400-801-A

EFFECTIVITY: ALL

### 3. MAIN GENERATOR CONTROL UNIT (GCU) - INSTALLATION

#### A. General

(1) This task gives the procedure to install the main GCU's.

#### B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 24-31-00-700-803-A/500	MAIN GENERATION SYSTEM - OPERATIONAL TEST

#### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223	223ELW	Cockpit - LH console
224	224ERW	Cockpit - RH console

#### D. Tools and Equipment

Not Applicable

#### 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 - LH console
1	Does the task	Cockpit - RH console

#### I. Installation (Figure 401)

SUBTASK 420-002-A

**CAUTION:** OBEY THE INSTRUCTIONS WRITTEN ON THE GCU PLACARD. DO NOT CONNECT OR DISCONNECT THE GCU UNIT WHILE POWER IS APPLIED. IF YOU DO, DAMAGE TO THE ELECTRICAL SYSTEM OR TO THE EQUIPMENT CAN OCCUR.

**NOTE:** Make sure that the GPU pushbutton, BATT 1 and BATT 2 switches, on the electrical panel, installed on the overhead panel, are set at OFF.

(1) Make sure that the engines are not in operation.

- (2) Put the main GCU (2) in its location.
- (3) Tighten the screws (3).
- (4) Connect the connector (1) in the main GCU (2).

J. Follow-on

*SUBTASK 842-002-A*

- (1) Close access panel 223ELW and/or 224ERW ( [AMM MPP 06-41-03/100](#)) as applicable.
- (2) Remove the DO-NOT-SET-ON tag from the GPU pushbutton.
- (3) Remove the DO-NOT-SET-AUTO tag from the BATT 1 and BATT 2 switches.
- (4) Remove the DO-NOT-SET-AUTO tag from the BACKUP pushbutton.
- (5) Set the BACKUP pushbutton to AUTO.
- (6) Do the operational test of the Main Generation System ( [AMM TASK 24-31-00-700-803-A/500](#)).

TASK 24-31-02-080-801-A

EFFECTIVITY: ALL

#### 4. MAIN GCU TROUBLESHOOTING SOFTWARE - DISCONNECTION

##### A. General

- (1) This task gives the procedures to disconnect the Main GCU Troubleshooting Software. It was prepared to make the troubleshooting easier, when one of the probable causes is the Main GCU. It uses a software developed to detect if the Main GCU is really defective. The use of this task, together with a task from the Fault Isolation Manual (FIM), will prevent unnecessary change of the Main GCU.

##### B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 71-00-01-910-801-A/200	ENGINE START PROCEDURE (NORMAL)

##### 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
GSE 499	Set software/harness GCU troubleshooting	To do the functional check of the GCU	
GSE 130	Laptop Computer	Downloading	
Commercially Available	RS232 adapter cable, 9 pin "D" male connector at one end and on the other end, USB connector.	Adapter cable	

##### 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 841-003-A*

- (1) Shut down the engine 1 or the engine 2 ( [AMM TASK 71-00-01-910-801-A/200](#)), as applicable.
- (2) Set the GEN 1, GEN 2, GEN 3 or GEN 4 pushbutton to OFF, as applicable.
- (3) Attach a DO-NOT-SET-ON tag to the GEN 1, GEN 2, GEN 3 or GEN 4 pushbutton, as applicable.
- (4) De-energize the aircraft ( [AMM TASK 20-40-01-860-801-A/200](#)).

J. Disconnection ([Figure 402](#))

*SUBTASK 080-002-A*

- (1) Disconnect the GSE 499 (7) and GSE 130 (5), do as follows:

**CAUTION:** OBEY THE INSTRUCTIONS WRITTEN ON THE GCU PLACARD. DO NOT CONNECT OR DISCONNECT THE GCU UNIT WHILE POWER IS APPLIED. IF YOU DO, DAMAGE TO THE ELECTRICAL SYSTEM OR TO THE EQUIPMENT CAN OCCUR.

- (a) Disconnect the electrical connector (2) from the electrical connector (1).

- (b) Disconnect the Serial Port connector (6) from the GSE 130 (5).

**NOTE:** If you installed the RS232 adapter cable, remove it.

- (c) Disconnect the electrical connector (3) from the Main GCU (4).

- (d) Connect the electrical connector (1) from the Main GCU (4).

- (2) Close access panel 223ELW or 224ERW ( [AMM MPP 06-41-03/100](#)), as applicable.
- (3) Remove the DO-NOT-SET-ON tag from the GEN 1, GEN 2, GEN 3 or GEN 4 pushbutton, as applicable.

K. Follow-on

*SUBTASK 842-003-A*

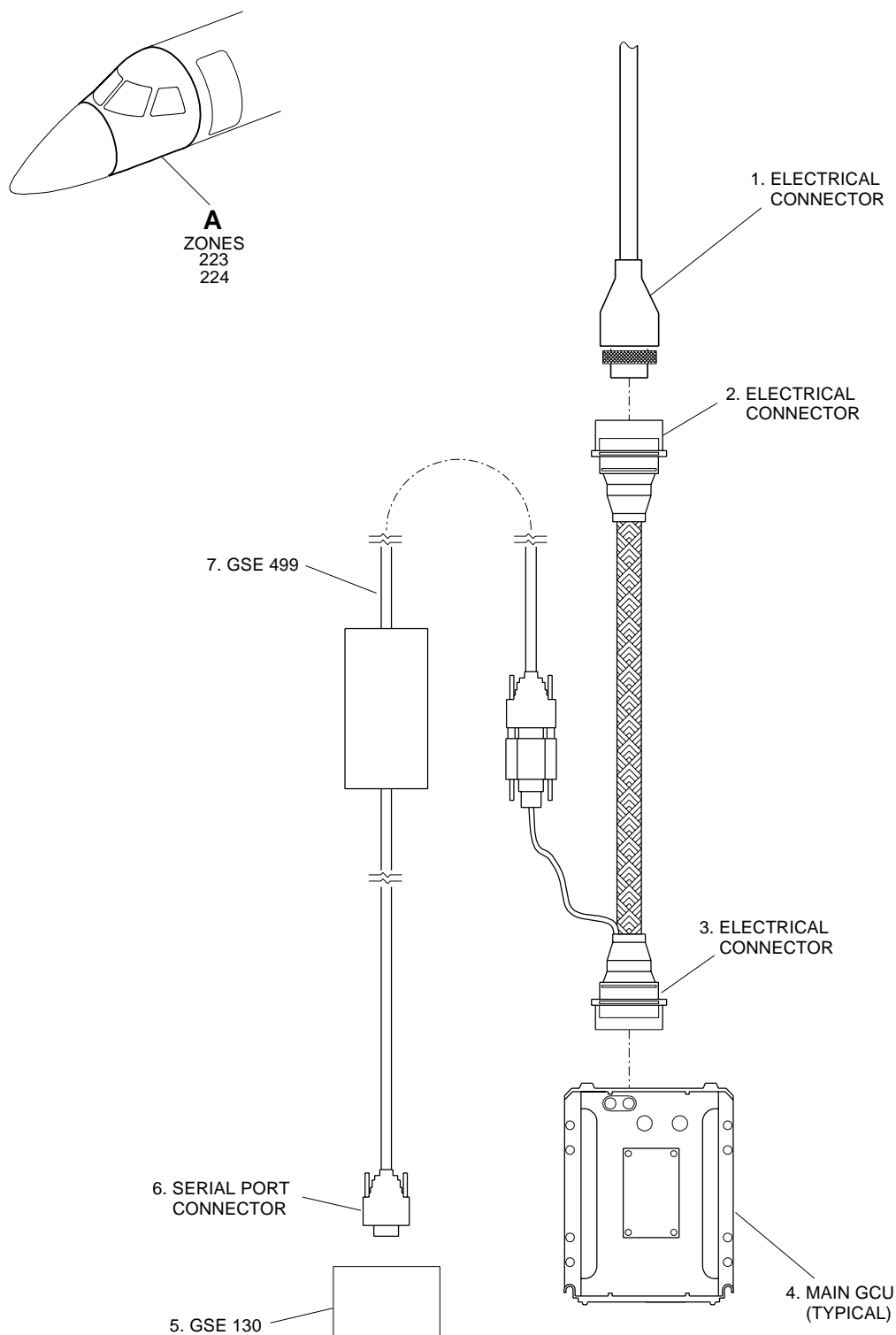
- (1) Not applicable.



EFFECTIVITY: ALL

Main GCU Troubleshooting Software - Disconnection/Connection

Figure 402



EM145AMM240618A.DGN

TASK 24-31-02-480-801-A

EFFECTIVITY: ALL

## 5. MAIN GCU TROUBLESHOOTING SOFTWARE - CONNECTION

### A. General

- (1) This task gives the procedures to connect the Main GCU Troubleshooting Software. It was prepared to make the troubleshooting easier, when one of the probable causes is the Main GCU. It uses a software developed to detect if the Main GCU is really defective. The use of this task, together with a task from the Fault Isolation Manual (FIM), will prevent unnecessary change of the Main GCU.

### B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 24-31-02-080-801-A/400	MAIN GCU TROUBLESHOOTING SOFTWARE - DISCONNECTION
AMM TASK 71-00-01-910-801-A/200	ENGINE START PROCEDURE (NORMAL)
FIM TASK 24-31-00-810-829-A	-

### 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
GSE 499	Set software/harness GCU troubleshooting	To do the functional check of the GCU	
GSE 130	Laptop Computer	Downloading	
Commercially Available	RS232 adapter cable, 9 pin "D" male connector at one end and on the other end, USB connector.	Adapter cable	

### 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 841-004-A*

- (1) De-energize the aircraft ( [AMM TASK 20-40-01-860-801-A/200](#)).
- (2) Make sure that the engines are not in operation.
- (3) Make sure that the GEN 1, GEN 2, GEN 3 or GEN 4 pushbutton is in OFF, as applicable.
- (4) If you have to get access to main GCU 1 or/and main GCU 3 open access panel 223ELW ( [AMM MPP 06-41-03/100](#)).
- (5) If you have to get access to main GCU 2 or/and main GCU 4 open access panel 224ERW ( [AMM MPP 06-41-03/100](#)).

J. Connection (Figure 402)

*SUBTASK 480-002-A*

- (1) Connect the GSE 499 (7) and GSE 130 (5), do as follows:

**CAUTION:** OBEY THE INSTRUCTIONS WRITTEN ON THE GCU PLACARD. DO NOT CONNECT OR DISCONNECT THE GCU UNIT WHILE POWER IS APPLIED. IF YOU DO, DAMAGE TO THE ELECTRICAL SYSTEM OR TO THE EQUIPMENT CAN OCCUR.

- (a) Disconnect the electrical connector (1) from Main GCU (4).
- (b) Connect the electrical connector (3) to the Main GCU (4).
- (c) Connect the Serial Port connector (6) to the GSE 130 (5).  
**NOTE:** If necessary, install the RS232 adapter cable to connect the GSE 499 to the GSE 130.
- (d) Connect the electrical connector (2) to the electrical connector (1).
- (2) Energize the aircraft ( [AMM TASK 20-40-01-860-801-A/200](#)).
- (3) To test the Main GCU 1 or Main GCU 3, start engine 1 ( [AMM TASK 71-00-01-910-801-A/200](#)).
- (4) To test the Main GCU 2 or Main GCU 4, start engine 2 ( [AMM TASK 71-00-01-910-801-A/200](#)).
- (5) Set the GEN 1, GEN 2, GEN 3 or GEN 4 pushbutton to ON, as applicable.
- (6) Read the data acquired through GSE 499 from the laptop (GSE 130).
- (7) Look to see if there is some detected fault marked. If so, use this information together with the Fault Isolation Manual (FIM) relation task and use the Main GCU

Troubleshooting software (FIM TASK 24-31-00-810-829-A). Otherwise, disconnect GSE 499 ([AMM TASK 24-31-02-080-801-A/400](#)).

K. Follow-on

*SUBTASK 842-004-A*

(1) Not applicable.