APU GENERATION - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to do the check of the APU generation overcurrent-protection circuit, operational check of the APU generation switching circuit, and operational test of the APU generation system.

   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).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
24-34-00-700-801-A ♦	APU GENERATION OVERCURRENT-PROTECTION CIRCUIT - OPERATIONAL CHECK	ALL
24-34-00-700-802-A ♦	APU GENERATION SWITCHING CIRCUIT - OPERATIONAL CHECK	ALL
24-34-00-700-803-A	APU GENERATION SYSTEM - OPERATIONAL TEST	ALL

TASK 24-34-00-700-801-A
EFFECTIVITY: ALL

2. APU GENERATION OVERCURRENT-PROTECTION CIRCUIT - OPERATIONAL CHECK

A. General

(1) The function of this check is to make sure that the overcurrent protection circuit operates correctly.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-01/100	-
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM SDS 24-35-00/1	
AMM SDS 24-60-00/1	
AMM SDS 32-30-00/1	
AMM SDS 45-45-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 45-45-00-970-801-A/200	CMC DOWNLOADING WITH THE MFD
SB145-32-0036	-
SB145-45-0001	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
114	114BZ	Nose-Landing-Gear Compartment
223	223LZ	Cockpit

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

I. Preparation

SUBTASK 841-002-A

NOTE: Do not operate the APU and the engines.

(1) Make sure that the aircraft is on the ground (WOW) (AMM SDS 32-30-00/1) and safe for maintenance.

(2) On aircraft PRE-MOD SB145-32-0036, make sure that the pressure in hydraulic system 1 is fully released (AMM TASK 29-10-00-860-802-A/200).

(3) On aircraft POST-MOD SB145-32-0036, install the safety pin of the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

(4) Energize the aircraft with external DC-power supply (AMM TASK 20-40-01-860-801-A/200).

(5) Open maintenance panel door 114BZ (AMM MPP 06-41-01/100) to get access to the backup battery relay box.

(6) Open maintenance panel door 223LZ (AMM MPP 06-41-03/100) to get access to the maintenance panel.

(7) On the LH electrical-power control/distribution box (AMM SDS 24-60-00/1), open the HEATING/TAT 1, HEATING/PITOT 1, and HEATING/AOA 1 circuit breakers and attach DO-NOT-CLOSE tags to them.

(8) On the RH electrical-power control/distribution box (AMM SDS 24-60-00/1), open the HEATING/TAT 2, HEATING/PITOT 2, HEATING/AOA 2, and PITOT HTG 3 circuit breakers and attach DO-NOT-CLOSE tags to them.

J. Operationally Check APU Generation Overcurrent Protection Circuit (Figure 501)

SUBTASK 710-002-A

(1) Make sure that all GEN and APU GEN pushbuttons, on the electrical panel, located on the overhead panel, are set at ON.

(2) Make sure that the backup battery is installed (AMM SDS 24-35-00/1) in the forward electronic compartment, and that the BACKUP pushbutton, on the electrical panel, on the overhead panel, is set at AUTO.

(3) Make sure that the SHED BUSES switches, on the electrical panel, on the overhead panel, are set at AUTO.

(4) Make sure that the BUS TIES switch, on the electrical panel, on the overhead panel, is set at AUTO.

(5) Make sure that the BATT 1-2 switches, on the electrical panel, on the overhead panel, are set at OFF.

(a) The EICAS display shows the BACKUP BATT OFF BUS caution messages.

(6) (Applicable only to aircraft POST-MOD SB145-45-0001) Set the CMC RESET/ENABLE switch, on the maintenance panel (AMM SDS 45-45-00/1), to ENABLE.

(7) Do a check on the APU generator overcurrent-protection circuit as follows:

(a) Set the APU GEN pushbutton, on the electrical panel, on the overhead panel, to OFF/RESET.

Result:

1 On the APU GEN pushbutton, the striped bar comes on.

(b) Set the ELEC PWR switch, on the maintenance panel (AMM SDS 45-45-00/1), to TEST and hold it.

Result:

1 The MFDs and PFDs go off.

2 The EICAS display shows the SHED BUS 1-2 OFF, DC BUS 1-2 OFF, and ELEC EMERG ABNORMAL caution messages.

3 The master CAUTION lights flash.

(c) Push a master CAUTION light.

Result:

1 The master CAUTION lights go off.

(d) Release the ELEC PWR switch.

(e) Set the ELEC PWR switch to RESET.

Result:

1 The MFDs and PFDs come on.

2 On the EICAS display, the SHED BUS 1-2 OFF, DC BUS 1-2 OFF, and ELEC EMERG ABNORMAL caution messages go out of view.

(f) Set the APU GEN pushbutton to ON.

Result:

1 On the APU GEN pushbutton, the striped bar goes off.

(8) On the backup battery relay box (AMM SDS 24-60-00/1), open the O/C RLY 1 and O/C RLY 2 circuit breakers and attach DO-NOT-CLOSE tags to them.

(9) Set MFD 1 to the maintenance page (AMM TASK 45-45-00-970-801-A/200).

NOTE: Ignore the messages shown.

(10) Do a check on the APU generator BITE messages as follows:

(a) Set the APU GEN pushbutton, on the electrical panel, on the overhead panel, to OFF/RESET.

Result:

1 On the APU GEN pushbutton, the striped bar comes on.

(b) Set the ELEC PWR switch, on the maintenance panel (AMM SDS 45-45-00/1), to TEST and hold it.

Result:

1 MFD 1 display shows the APU GCU FAIL, APU STARTER GENERATOR FAIL, and APU START CONTACTOR FAIL maintenance messages.

(c) Release the ELEC PWR switch.

(d) Set the ELEC PWR switch to RESET.

(e) Set the APU GEN pushbutton to ON.

Result:

1 On the APU GEN pushbutton, the striped bar goes off.

(11) Remove the DO-NOT-CLOSE tags from the O/C RLY 1 and O/C RLY 2 circuit breakers and close them.

(12) (Applicable only to aircraft POST-MOD SB145-45-0001) Set the CMC RESET/ENABLE switch, on the maintenance panel (AMM SDS 45-45-00/1), to the middle position.

K. Follow-on

SUBTASK 842-002-A

(1) Close access panel 223LZ (AMM MPP 06-41-03/100).

(2) Close access panel 114BZ (AMM MPP 06-41-01/100).

(3) Remove the DO-NOT-CLOSE tags from the HEATING/TAT 1, HEATING/PITOT 1, and HEATING/AOA 1 circuit breakers and close them.

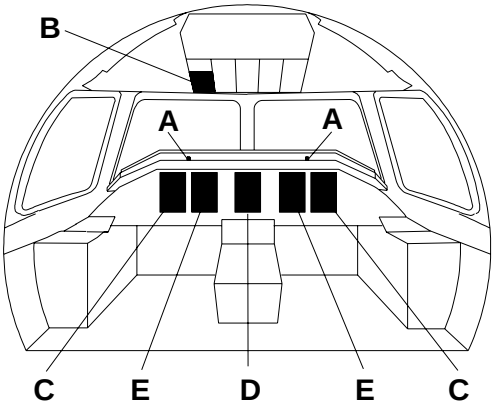
(4) Remove the DO-NOT-CLOSE tags from the HEATING/TAT 2, HEATING/PITOT 2, HEATING/AOA 2, and PITOT HTG 3 circuit breakers and close them.

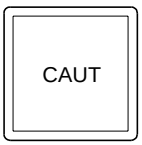
(5) On aircraft POST-MOD SB145-32-0036, remove the safety pin from the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

(6) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

EFFECTIVITY: ALL

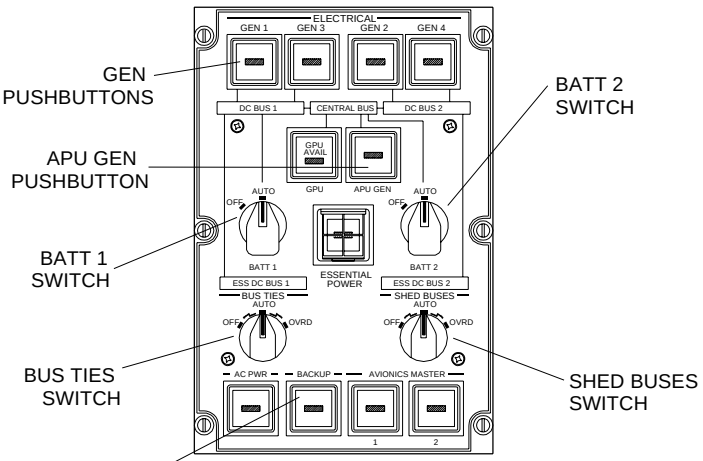
APU Overcurrent Protection Circuit - Operational Check
Figure 501





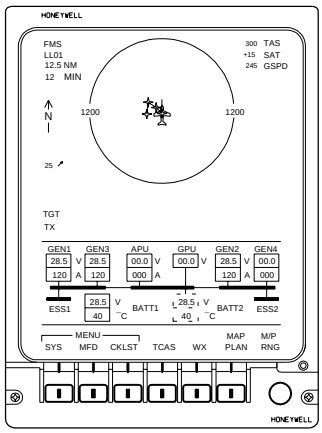
DET. A

MASTER CAUTION
LIGHT



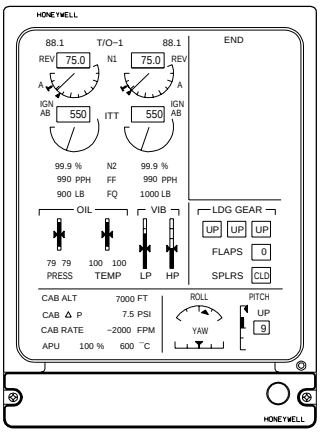
DET. B

ELECTRICAL PANEL



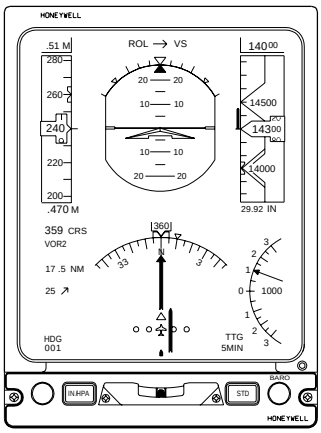
DET. E

MFD



DET. D

EICAS DISPLAY



DET. C

PFD

EM145AMM240844A.DGN

TASK 24-34-00-700-802-A
EFFECTIVITY: ALL

3. APU GENERATION SWITCHING CIRCUIT - OPERATIONAL CHECK

A. General

(1) The function of this check is to make sure that the APU-Generation Switching Circuit operates correctly.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 24-34-00/1	
AMM SDS 31-41-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 49-10-00-910-802-A/200	APU - START
AMM TASK 49-10-00-910-803-A/200	APU - SHUTDOWN
AMM TASK 49-13-00-910-802-A/200	APU - START
AMM TASK 49-13-00-910-803-A/200	APU - SHUTDOWN

C. Zones and Accesses

Not Applicable

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

I. Preparation

SUBTASK 841-006-A

(1) Make sure that the BATT 1 and BATT 2 switches, on the electrical panel, on the overhead panel, are set at AUTO.

(2) Start the APU (AMM TASK 49-13-00-910-802-A/200 for APU T-62T-40C14 or AMM TASK 49-10-00-910-802-A/200 for APU T-62T-40C11).

NOTE: Disconnect the GPU (ground power unit) (AMM TASK 20-40-01-860-801-A/200), if it was used for the APU start.

(3) Make sure that the SHED BUSES switches, on the electrical panel, on the overhead panel, are set at AUTO.

(4) Make sure that the BUS TIES switch, on the electrical panel, on the overhead panel, is set at AUTO.

J. Operationally Check APU Generation Switching Circuit (Figure 502)

SUBTASK 710-006-A

(1) Do the check as follows:

(a) The MFDs, PFDs, and EICAS displays come on.

(b) The EICAS display shows the SHED BUS 1-2 OFF caution messages.

Result:

1 The master CAUTION lights flash.

(c) Push a master CAUTION light.

Result:

1 The master CAUTION lights go off.

(d) Set MFD 1 (or 2) to the ELEC page (AMM SDS 31-41-00/1).

Result:

1 The ELEC page shows the APU GEN current and voltage nominal values boxed in green (AMM SDS 24-34-00/1).

(e) Set the APU GEN pushbutton, on the electrical panel, on the overhead panel, to OFF/RESET.

Result:

1 On the APU GEN pushbutton, the striped bar comes on.

2 The ELEC page shows the APU GEN voltage and current boxed in amber.

3 The EICAS display shows the APU GEN OFF BUS caution message.

4 On the EICAS display, the SHED BUS 1-2 OFF caution messages stay in view.

5 The master CAUTION lights flash.

(f) Push a master CAUTION light.

Result:

1 The master CAUTION lights go off.

(g) Set the APU GEN pushbutton to ON.

Result:

1 On the APU GEN pushbutton, the striped bar goes off.

2 The ELEC page shows the APU GEN voltage and current boxed in green.

3 On the EICAS display, the APU GEN OFF BUS caution message goes out of view.

4 On the EICAS display, the SHED BUS 1-2 OFF caution messages stay in view.

K. Follow-on

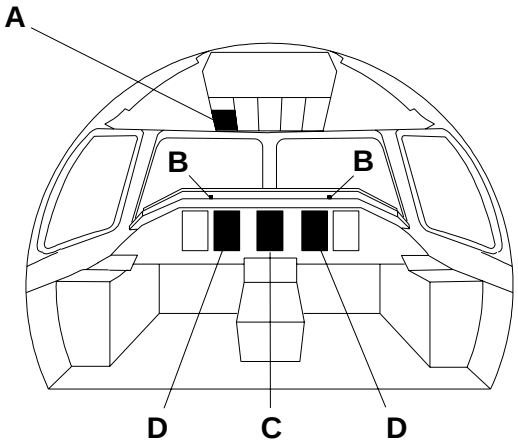
SUBTASK 842-006-A

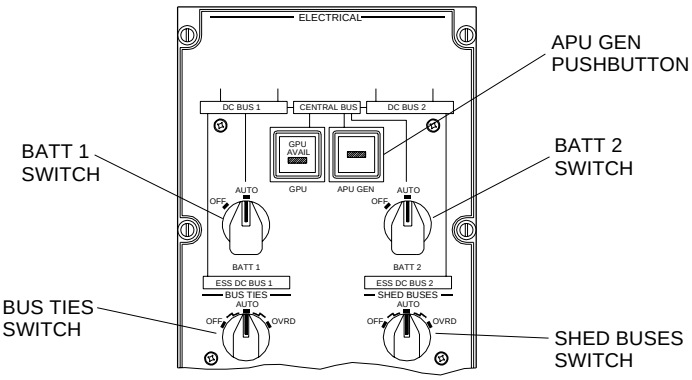
(1) Stop the APU (AMM TASK 49-13-00-910-803-A/200 for APU T-62T-40C14 or AMM TASK 49-10-00-910-803-A/200 for APU T-62T-40C11).

(2) Set the BATT 1 and BATT 2 switches to OFF.

EFFECTIVITY: ALL

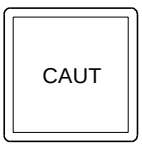
APU Generator Switching Circuit - Operational Check
Figure 502





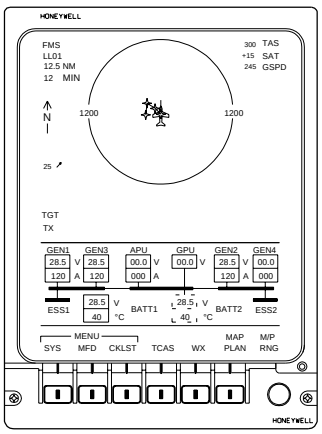
DET. A

ELECTRICAL PANEL



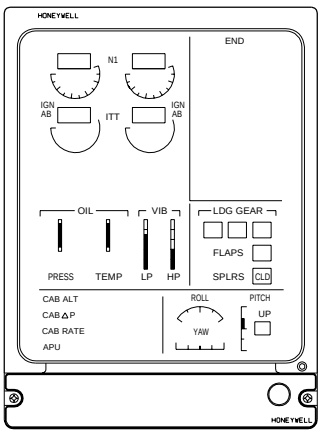
DET. B

MASTER CAUTION
LIGHT



DET. D

MFD



DET. C

EICAS DISPLAY

EM145AMM240004C.DGN

TASK 24-34-00-700-803-A
EFFECTIVITY: ALL

4. APU GENERATION SYSTEM - OPERATIONAL TEST

A. General

(1) The function of this test is to make sure that the APU generation system operates correctly.

B. References

REFERENCE	*DESIGNATION*
AMM SDS 24-34-00/1	
AMM SDS 31-41-00/1	
AMM TASK 49-10-00-910-802-A/200	APU - START
AMM TASK 49-10-00-910-803-A/200	APU - SHUTDOWN
AMM TASK 49-13-00-910-802-A/200	APU - START
AMM TASK 49-13-00-910-803-A/200	APU - SHUTDOWN

C. Zones and Accesses

Not Applicable

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

I. Preparation

SUBTASK 841-007-A

(1) Make sure that the APU GEN pushbutton, on the electrical panel, on the overhead panel, is set at AUTO.

(2) Make sure that the BATT 1 and BATT 2 switches, on the electrical panel, on the overhead panel, are set at AUTO.

(3) Start the APU (AMM TASK 49-13-00-910-802-A/200 for APU T-62T-40C14 or AMM TASK 49-10-00-910-802-A/200 for APU T-62T-40C11).

NOTE: Use the main batteries to start the APU.

(4) Make sure that the SHED BUSES switch, on the electrical panel, on the overhead panel, is set at AUTO.

(5) Make sure that the BUS TIES switch, on the electrical panel, on the overhead panel, is set at AUTO.

J. Test Procedure (Figure 503)

SUBTASK 710-007-A

(1) Do the check as follows:

(a) Set the ELEC page on MFD 1 (or 2) (AMM SDS 31-41-00/1).

Result:

1 The ELEC page shows the APU GEN current and voltage nominal values boxed in green. See (Figure 503) DET. E.

NOTE: For normal operation, the APU generator voltage and current values are shown on the MFD in green, and for abnormal operation they are shown in amber. The EICAS also processes and shows the alert messages related the electrical system. For more information related to APU indication and messages, refer to AMM SDS 24-34-00/1.

2 The EICAS display shows the SHED BUS 1-2 OFF caution messages.

3 The master CAUTION lights flash.

(b) Push a master CAUTION light.

Result:

1 The master CAUTION lights go off.

(c) Set the APU GEN pushbutton to OFF/RESET.

Result:

1 On the APU GEN pushbutton, the striped bar comes on.

2 The ELEC page shows the APU GEN voltage and current boxed in amber.

3 The EICAS display shows the APU GEN OFF BUS caution message.

4 The master CAUTION lights flash.

5 On the EICAS display, the SHED BUS 1-2 caution messages stay in view.

(d) Set the APU GEN pushbutton to ON.

Result:

1 On the MFDs, the ELEC page shows the APU GEN current and voltage boxed in green.

2 On the EICAS display, the APU GEN OFF BUS caution message goes out of view.

3 On the EICAS display, the SHED BUS 1-2 caution messages stay in view.

4 On the APU GEN pushbutton, the striped bar goes off.

K. Follow-on

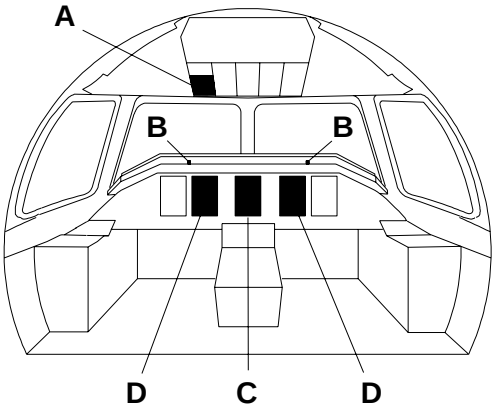
SUBTASK 842-007-A

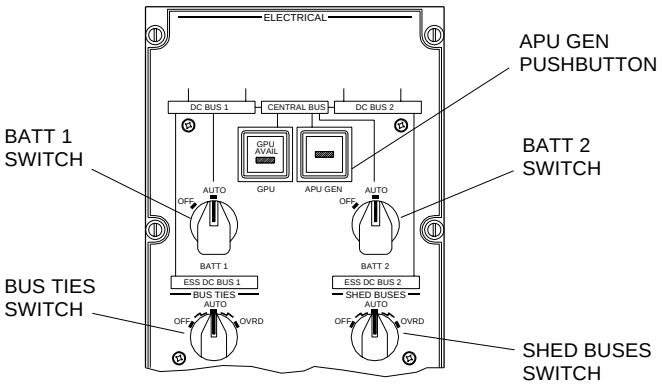
(1) Stop the APU (AMM TASK 49-13-00-910-803-A/200 for APU T-62T-40C14 or AMM TASK 49-10-00-910-803-A/200 for APU T-62T-40C11).

(2) Set the BATT 1 and BATT 2 switches to OFF.

EFFECTIVITY: ALL

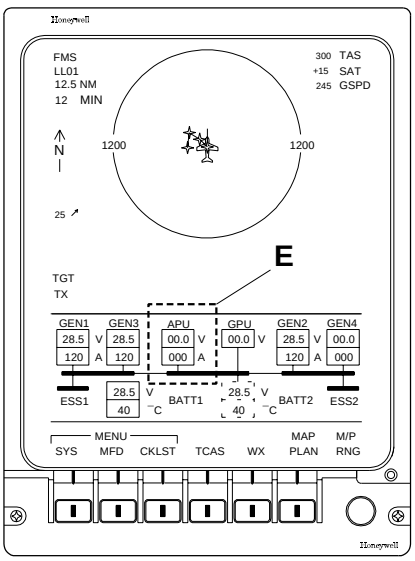
APU Generation System - Operational Test
Figure 503





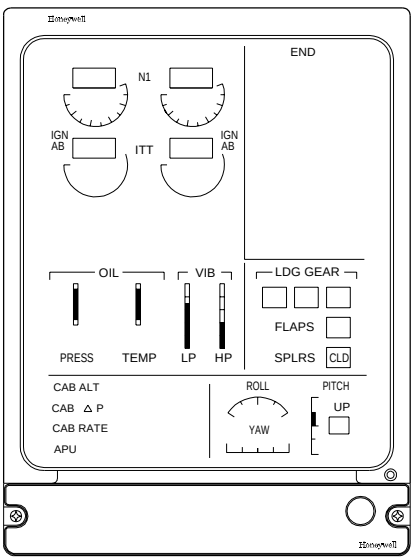
ELECTRICAL PANEL

DET. A



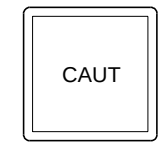
MFD

DET. D



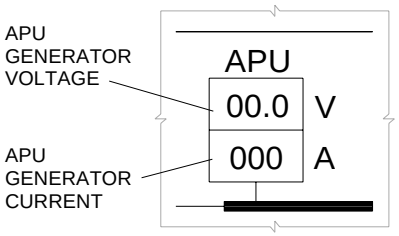
EICAS DISPLAY

DET. C



MASTER CAUTION
LIGHT

DET. B



APU BOX

DET. E

EM145AMM240108D.DGN