**COMMUNICATION MANAGEMENT UNIT (CMU) - MAINTENANCE PRACTICES**

*EFFECTIVITY: AIRCRAFT WITH CMU*

1.  <u>General</u>

    A.  This section gives the procedures to do the check for the version of the Communication Management Unit (CMU) and to upload the CMU software.

    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 |
|---|---|---|
| 23-24-01-470-801-A | CMU SOFTWARE - UPLOADING | AIRCRAFT WITH CMU |
| 23-24-01-750-801-A | CMU SOFTWARE VERSION - CHECK | AIRCRAFT WITH CMU |

TASK 23-24-01-470-801-A
*EFFECTIVITY: AIRCRAFT WITH CMU*

2.  <u>CMU SOFTWARE - UPLOADING</u>

    A.  General

        (1)  This task gives the procedures to upload the CMU software.

        (2)  (POST-MOD. S.B.145-23-0026 and PRE-MOD. S.B. 145-23-0034) Use the GSE 370, GSE 371, GSE 372, GSE 373, GSE 374 and GSE 375.

        (3)  (POST-MOD. S.B.145-23-0034) Use the GSE 599, GSE 600 and GSE 601 to install the Software Version Block 0.82.

        (4)  (POST-MOD. S.B.145-23-0034) Use the GSE 602, GSE 603 and GSE 604 to install the Software Version Block 1.29.

    B.  References

| REFERENCE | DESIGNATION |
|---|---|
| AMM MPP 06-41-01/100 | - |
| AMM TASK 20-40-01-860-801-A/200 | ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE |
| AMM TASK 23-24-00-700-801-A/500 | CMU - FUNCTIONAL TEST WITH A PORTABLE ACARS TEST STATION (PATS) |
| AMM TASK 23-24-00-700-802-A/500 | CMU - FUNCTIONAL TEST WITH AN ACARS GROUND STATION |
| AMM TASK 23-24-01-750-801-A/200 | CMU SOFTWARE VERSION - CHECK |
| IPC 23-24-01 | COMMUNICATION MANAGEMENT UNIT |
| S.B.145-23-0026 | - |
| S.B.145-23-0034 | - |

    C.  Zones and Accesses

| ZONE | PANEL/DOOR | LOCATION |
|---|---|---|
| 213 | 113CZ | Forward electronic compartment |
| 223 | - | Cockpit |

    D.  Tools and Equipment

| ITEM | DESCRIPTION | PURPOSE | QTY |
|---|---|---|---|
| GSE 370 | Product Software PCMCIA Card | To upload the CMU Software | |
| GSE 371 | HGI Database PCMCIA Card | To upload the CMU Software | |
| GSE 372 | AMI Database PCMCIA Card | To upload the CMU Software | |
| GSE 373 | PCMCIA ATA Card Load Tool Diskette | To upload the CMU Software | |
| GSE 374 | PMAT 2000 - Special Laptop | To upload the CMU Software | |
| GSE 375 | CMU Upgrading Harness | To connect the PMAT 2000 to the CMU | |

(Continued)

| ITEM | DESCRIPTION | PURPOSE | QTY |
|------|-------------|---------|-----|
| GSE 599 | Card, PCMCIA OPS Software CMU Block 0.82 | To upload the CMU Software | |
| GSE 600 | Card, PCMCIA HGI Database CMU Block 0.82 | To upload the CMU Software | |
| GSE 601 | Card, PCMCIA AMI Database CMU Block 0.82 | To upload the CMU Software | |
| GSE 602 | Card, PCMCIA OPS Software CMU Block 1.29 | To upload the CMU Software | |
| GSE 603 | Card, PCMCIA HGI Database CMU Block 1.29 | To upload the CMU Software | |
| GSE 604 | Card, PCMCIA AMI Database CMU Block 1.29 | To upload the CMU Software | |

E.  Auxiliary Items

Not Applicable

F.  Consumable Materials

Not Applicable

G.  Expendable Parts

| ITEM | IPC REFERENCE (VENDOR REFERENCE) | QTY |
|------|----------------------------------|-----|
| Identification Label of Installed Software | IPC 23-24-01 | 1 |

H.  Persons Recommended

| QTY | FUNCTION | PLACE |
|-----|----------|-------|
| 1 | Does the task | Forward external fuselage - LH or cockpit |

I.  Preparation

*SUBTASK 841-002-A*

(1)  Energize the aircraft with the External DC-Power Supply ( AMM TASK 20-40-01-860-801-A/200).

(2)  On the circuit breaker panel, open the CMU circuit breaker.

(3)  On the circuit breaker panel, make sure that these circuit breakers are closed:

- CDU 1 circuit breaker.

- FMC 1 circuit breaker.

J.  Uploading Procedures (Figure 201)

*SUBTASK 470-002-A*
*EFFECTIVITY: POST-MOD. S.B. 145-23-0026 AND PRE-MOD. S.B. 145-23-0034*

(1)  Do the uploading of the CMU software as follows:

(a)    Open access door 113CZ (AMM MPP 06-41-01/100).

(b)    On the CMU (1), release the cover (2).

(c)    Connect the electrical connector (7) of the CMU Upgrading Harness (GSE 375) (5) to the CMU (1).

(d)    Connect the electrical connector (5) of the CMU Upgrading Harness (GSE 375) (5) to PMAT 2000 (GSE 374) (4).

(e)    On the PMAT 2000 (GSE 374) (4), insert the PCMCIA ATA Card Load Tool diskette (GSE 373) into the disk drive.

(f)    On the circuit breaker panel, close the CMU circuit breaker.

    1    Make sure that PMAT 2000 (GSE 374) (4) shows Programming. Refer to the PMAT 2000 manufacturing loading instructions.

    2    Insert the next disk as shown on the PMAT 2000 (GSE 374) (4).

    3    Make sure that PMAT 2000 (GSE 374) (4) shows Load Complete or COMP.

    4    Remove the diskette from the disk drive of the PMAT 2000 (GSE 374) (4).

(g)    On the circuit breaker panel, open the CMU circuit breaker.

(h)    On the CMU (1), remove the electrical connector (7) from the CMU (1) and install the cover (2).

(i)    On the CMU, loosen the thumb screw on the PCMCIA slot (8).

(j)    Insert the Product Software PCMCIA Card (GSE 370) into the PCMCIA slot (8).

(k)    On the circuit breaker panel, close the CMU circuit breaker.

    1    Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes.

    2    Make sure that the green and red LEDs stay on for approximately 25 minutes.

    NOTE:  During the software loading, the green and red LEDs stay on solid.

(l)    Remove the Product Software PCMCIA Card (GSE 370) when the green LED stays on (red LED goes off) and insert the HGI Database PCMCIA Card (GSE 371) into the PCMCIA slot (8).

    1    Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

    2    Make sure that the green and red LEDs stay on for approximately 3 minutes.

    NOTE:  During the software loading, the green and red LEDs stay on solid.

(m)   Remove the HGI Database PCMCIA Card (GSE 371) when the green LED stays on (red LED goes off) and insert the AMI Database PCMCIA Card (GSE 372) into the PCMCIA slot (8).

1   Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

2   Make sure that the green and red LEDs illuminate for approximately 3 minutes.

NOTE:  During the software loading, the green and red LEDs stay on solid.

(n)   Remove the AMI Database PCMCIA Card (GSE 372) when the green LED stays on (red LED goes off).

1   Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes to shows that the CMU restarts.

(o)   On the circuit breaker panel, open the CMU circuit breaker.

(p)   Tighten the thumb screw on the PCMCIA slot (8).

(q)   Do a check for the CMU software version. Refer to ( AMM TASK 23-24-01-750-801-A/200).

(r)   Install an Identification Label (3) on the front of the CMU (1). Refer to IPC 23-24-01 for the correct Identification Label P/N.

K.   Uploading Procedures (Figure 202)

*SUBTASK 470-003-A*
*EFFECTIVITY: POST-MOD. S.B. 145-23-0034*

(1)   To install the Software Version Block 0.82, do the uploading of the CMU software as follows:

(a)   Open access door 113CZ (AMM MPP 06-41-01/100).

(b)   On the circuit breaker panel, open the CMU circuit breaker.

(c)   On the CMU, loosen the thumb screw on the PCMCIA slot (3).

(d)   Insert the OPS Software CMU Block 0.82 PCMCIA Card (GSE 599) into the PCMCIA slot (3).

(e)   On the circuit breaker panel, close the CMU circuit breaker.

1   Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes.

2   Make sure that the green and red LEDs stay on for approximately 25 minutes.

NOTE:  During the software loading, the green and red LEDs stay on solid.

(f)     Remove the OPS Software CMU Block 0.82 PCMCIA Card (GSE 599) when the green LED stays on (red LED goes off) and insert the HGI Database CMU Block 0.82 PCMCIA Card (GSE 600) into the PCMCIA slot (3).

    1     Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

    2     Make sure that the green and red LEDs stay on for approximately 3 minutes.

    NOTE:  During the software loading, the green and red LEDs stay on solid.

(g)     Remove the HGI Database CMU Block 0.82 PCMCIA Card (GSE 600) when the green LED stays on (red LED goes off) and insert the AMI Database CMU Block 0.82 PCMCIA Card (GSE 601) into the PCMCIA slot (3).

    1     Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

    2     Make sure that the green and red LEDs illuminate for approximately 3 minutes.

    NOTE:  During the software loading, the green and red LEDs stay on solid.

(h)     Remove the AMI Database CMU Block 0.82 PCMCIA Card (GSE 601) when the green LED stays on (red LED goes off).

    1     Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes to shows that the CMU restarts.

(i)     On the circuit breaker panel, open the CMU circuit breaker.

(j)     Tighten the thumb screw on the PCMCIA slot (3).

(k)     Do a check for the CMU software version. Refer to ( AMM TASK 23-24-01-750-801-A/200).

(l)     Install an Identification Label (2) on the front of the CMU (1). Refer to IPC 23-24-01 for the correct Identification Label P/N.

*SUBTASK 470-010-A*

*EFFECTIVITY: POST-MOD. S.B. 145-23-0034*

(2)   To install the Software Version Block 1.29, do the uploading of the CMU software as follows:

(a)   Open access door 113CZ (AMM MPP 06-41-01/100).

(b)   On the circuit breaker panel, open the CMU circuit breaker.

(c)   On the CMU, loosen the thumb screw on the PCMCIA slot (3).

(d)   Insert the OPS Software CMU Block 1.29 PCMCIA Card (GSE 602) into the PCMCIA slot (3).

(e)   On the circuit breaker panel, close the CMU circuit breaker.

    <u>1</u>    Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes.

    <u>2</u>    Make sure that the green and red LEDs stay on for approximately 25 minutes.

        <u>NOTE</u>:  During the software loading, the green and red LEDs stay on solid.

(f)    Remove the OPS Software CMU Block 1.29 PCMCIA Card (GSE 602) when the green LED stays on (red LED goes off) and insert the HGI Database CMU Block 1.29 PCMCIA Card (GSE 603) into the PCMCIA slot (3).

    <u>1</u>    Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

    <u>2</u>    Make sure that the green and red LEDs stay on for approximately 3 minutes.

        <u>NOTE</u>:  During the software loading, the green and red LEDs stay on solid.

(g)    Remove the HGI Database CMU Block 1.29 PCMCIA Card (GSE 603) when the green LED stays on (red LED goes off) and insert the AMI Database CMU Block 1.29 PCMCIA Card (GSE 604) into the PCMCIA slot (3).

    <u>1</u>    Make sure that the green and red LEDs on the front of the CMU flash for approximately 1 minutes.

    <u>2</u>    Make sure that the green and red LEDs illuminate for approximately 3 minutes.

        <u>NOTE</u>:  During the software loading, the green and red LEDs stay on solid.

(h)    Remove the AMI Database CMU Block 1.29 PCMCIA Card (GSE 604) when the green LED stays on (red LED goes off).

    <u>1</u>    Make sure that the green and red LEDs on the front of the CMU flash for approximately 3 minutes to shows that the CMU restarts.

(i)    On the circuit breaker panel, open the CMU circuit breaker.

(j)    Tighten the thumb screw on the PCMCIA slot (3).

(k)    Do a check for the CMU software version. Refer to ( AMM TASK 23-24-01-750-801-A/200).

(l)    Install an Identification Label (2) on the front of the CMU (1). Refer to IPC 23-24-01 for the correct Identification Label P/N.

L.    Follow-on

    *SUBTASK 842-002-A*

(1)    Do the CMU operational test ( AMM TASK 23-24-00-700-801-A/500 or AMM TASK 23-24-00-700-802-A/500).
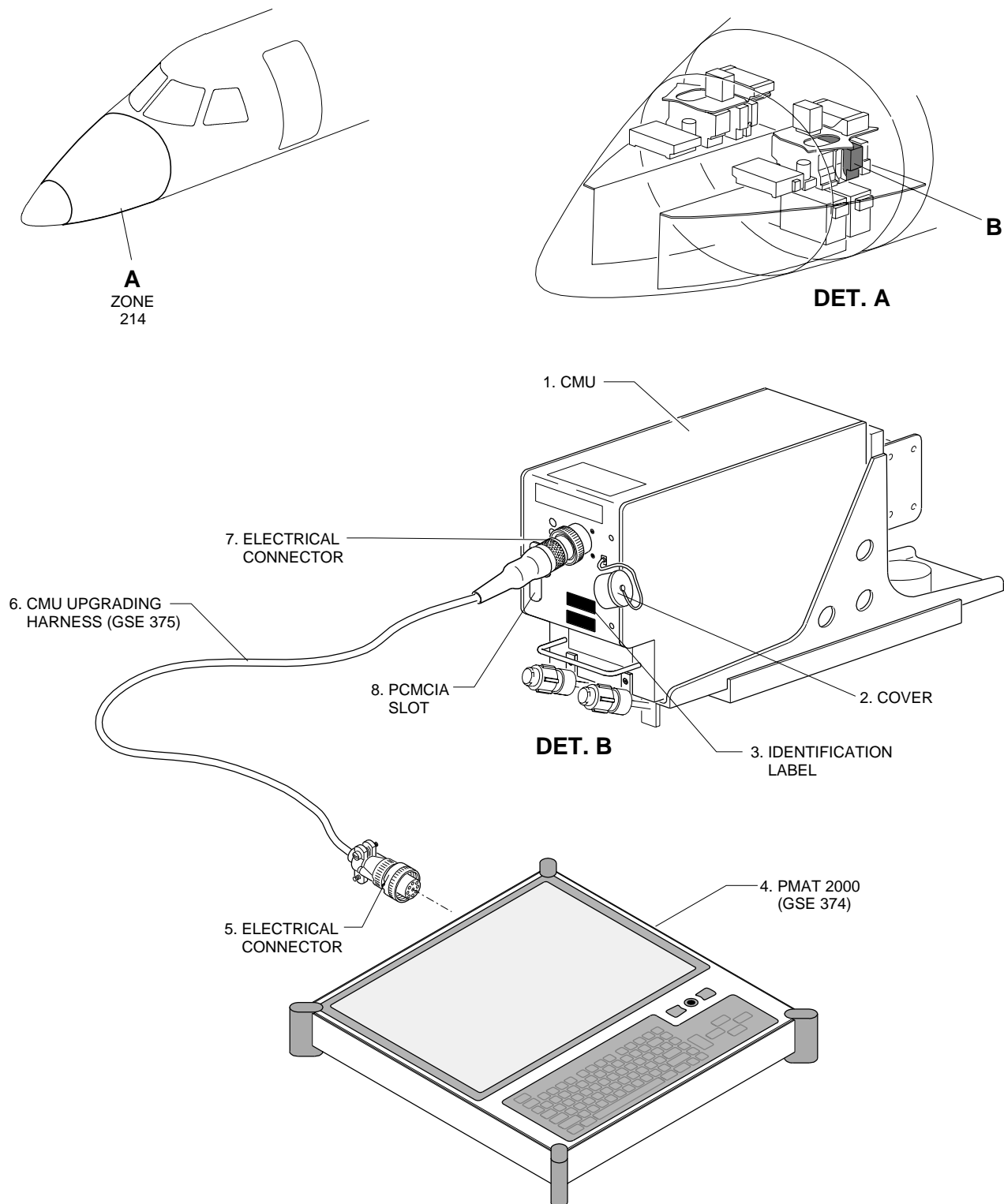
(2)    Close access door 113CZ (AMM MPP 06-41-01/100).

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

*EFFECTIVITY: POST-MOD. S.B. 145-23-0026 AND PRE-MOD. S.B. 145-23-0034*
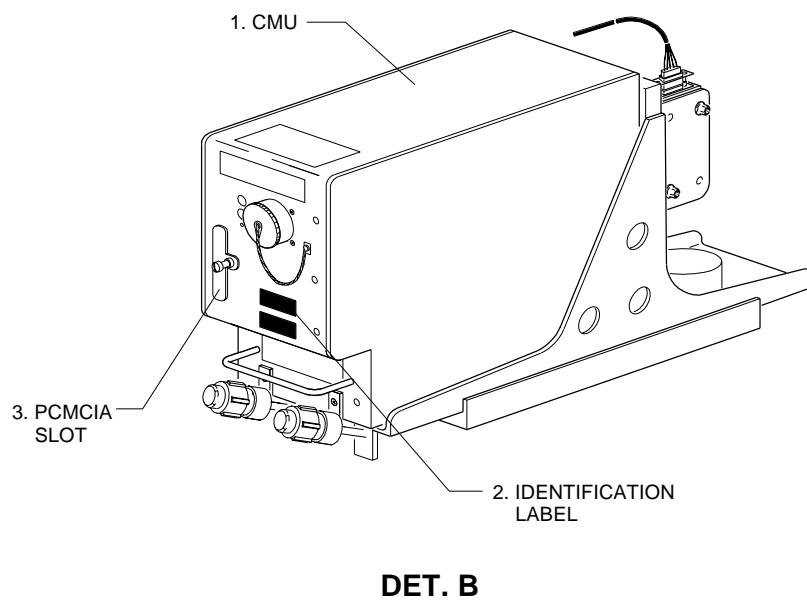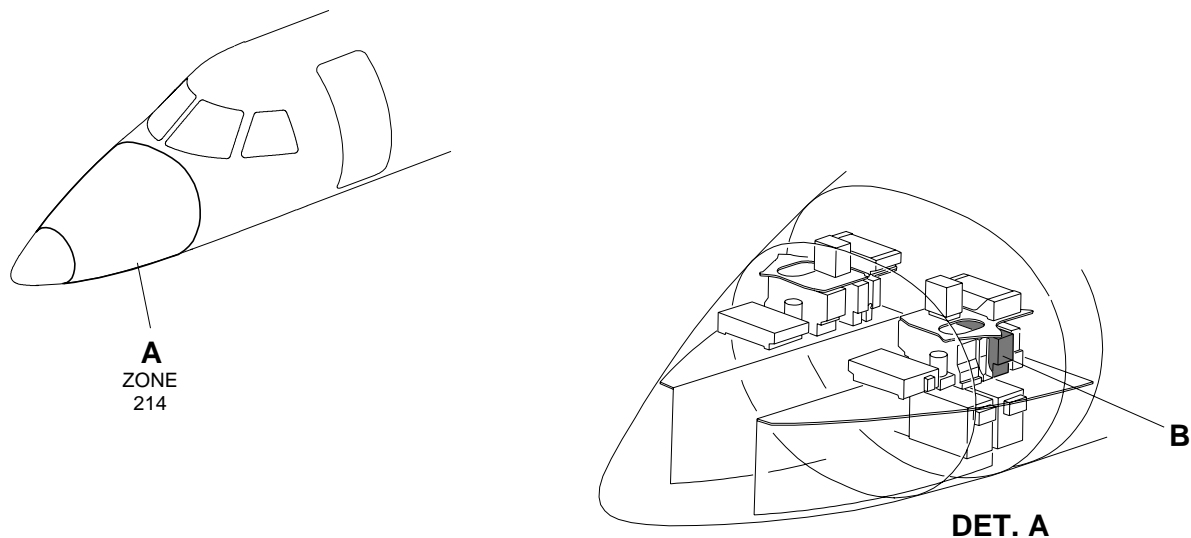Communication Management Unit - Uploading
Figure 201



**A**
ZONE
214

**DET. A**

**B**

1. CMU

7. ELECTRICAL
CONNECTOR

6. CMU UPGRADING
HARNESS (GSE 375)

8. PCMCIA
SLOT

2. COVER

3. IDENTIFICATION
LABEL

**DET. B**

5. ELECTRICAL
CONNECTOR

4. PMAT 2000
(GSE 374)

145AMM230621.MCE

EMB145 — EMB135

*EFFECTIVITY: POST-MOD. S.B. 145-23-0034*
Communication Management Unit - Uploading
Figure 202

**A**
ZONE
214

**B**

**DET. A**

1. CMU

3. PCMCIA
SLOT

2. IDENTIFICATION
LABEL

**DET. B**

145AMM230814.MCE

TASK 23-24-01-750-801-A
*EFFECTIVITY: AIRCRAFT WITH CMU*

3.  CMU SOFTWARE VERSION - CHECK

  A.  General

  (1)  This task gives the procedures to know the CMU software version.

  B.  References

| REFERENCE | DESIGNATION |
|---|---|
| AMM TASK 20-40-01-860-801-A/200 | ENERGIZATION OF THE AIRCRAFT WITH AN EX-TERNAL POWER SOURCE |
| AMM TASK 23-24-01-470-801-A/200 | CMU SOFTWARE - UPLOADING |
| IPC 23-24-01 | COMMUNICATION MANAGEMENT UNIT |

  C.  Zones and Accesses

| ZONE | PANEL/DOOR | LOCATION |
|---|---|---|
| 223 | - | 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 841-003-A*

  (1)  Energize the aircraft with the External DC-Power Supply ( AMM TASK 20-40-01-860-801-A/200).

  (2)  On the circuit breaker panel, open the CMU circuit breaker.

  (3)  On the circuit breaker panel, make sure that these circuit breakers are closed:

   •  CDU 1 circuit breaker.

   •  FMC 1 circuit breaker.

J.    Checking Procedures (Figure 203)  (Figure 204)

   *SUBTASK 750-002-A*

   (1)    Do a check to know the CMU software version as follows:

      (a)    On the circuit breaker panel, close the CMU circuit breaker.

      (b)    Make sure that the CMU is initialized.

         NOTE:  Approximately 3 minutes are necessary for CMU initialization.

      (c)    On the CDU, push the NAV function key.

         1    The NAV INDEX 1/2 page comes into view on the CDU display.

      (d)    Push the DATALINK line select key.

         1    The DATALINK INDEX 1/1 page comes into view on the CDU display.

      (e)    Push the CMU or ACARS line select key.

         1    The ACARS MAIN MENU 1/2 page comes into view on the CDU display.

      (f)    Push the SYS MENU line select key.

         1    The CMU SYSTEM MENU page comes into view on the CDU display.

      (g)    Push the MAINTENANCE line select key.

         1    The CMU MAINT MENU 1/2 page comes into view on the CDU display.

      (h)    Push the PART NUMBERS line select key.

         1    Make sure that these pieces of information are shown on the CDU:

            a    S/W PART NO

               Refer to IPC 23-24-01 for the correct CMU software P/N.

            b    HGI PART NO

               Refer to IPC 23-24-01 for the correct CMU software P/N.

            c    AMI PART NO

               Refer to IPC 23-24-01 for the correct CMU software P/N.

         2    If the pieces of information are not the same, do the uploading of the new software version. Refer to ( AMM TASK 23-24-01-470-801-A/200).
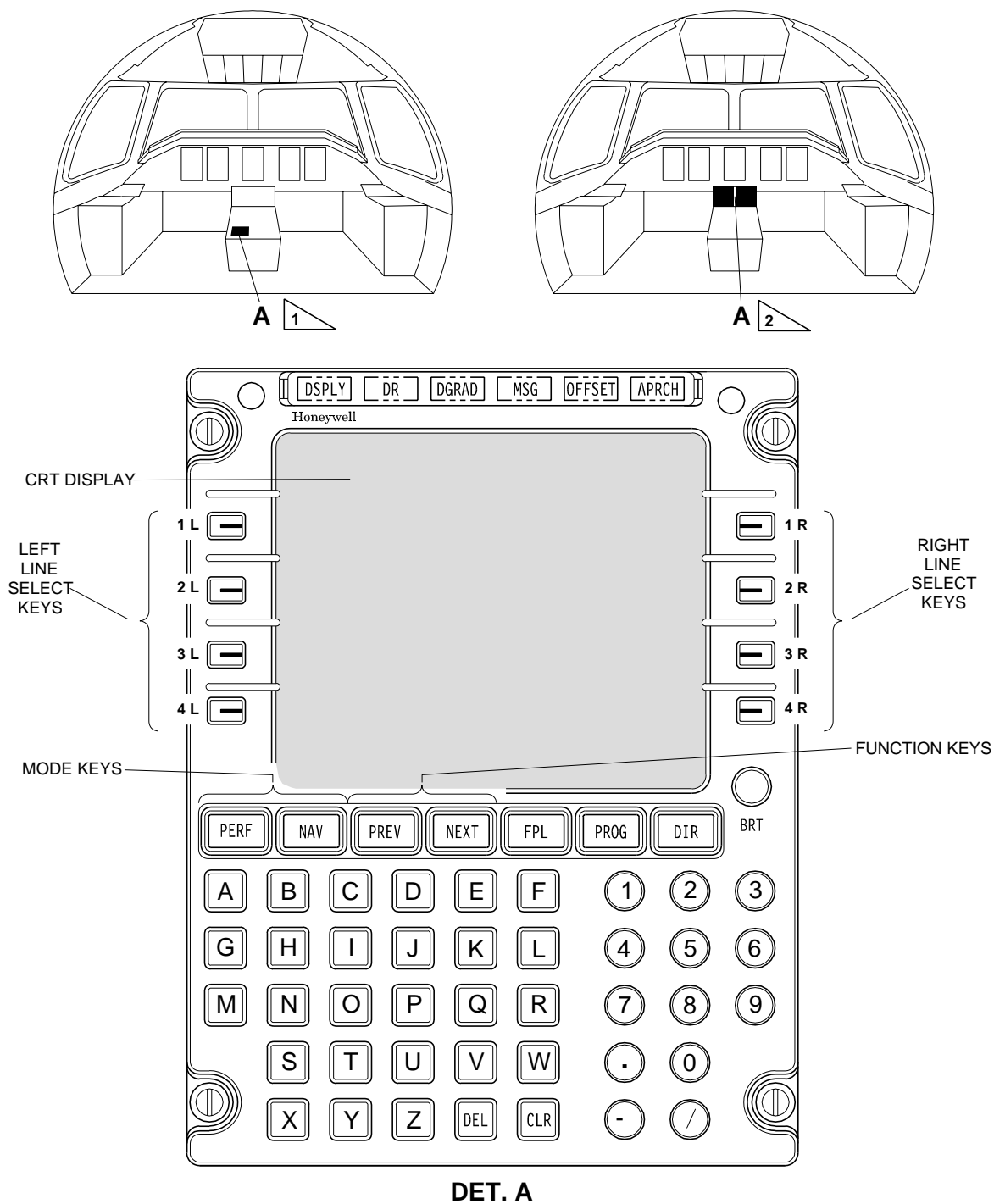
K.    Follow-on

   *SUBTASK 842-003-A*

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

EMB145 — EMB135

*EFFECTIVITY: AIRCRAFT WITH CDU-810*
CMU Software Version - Check
Figure 203



**DET. A**

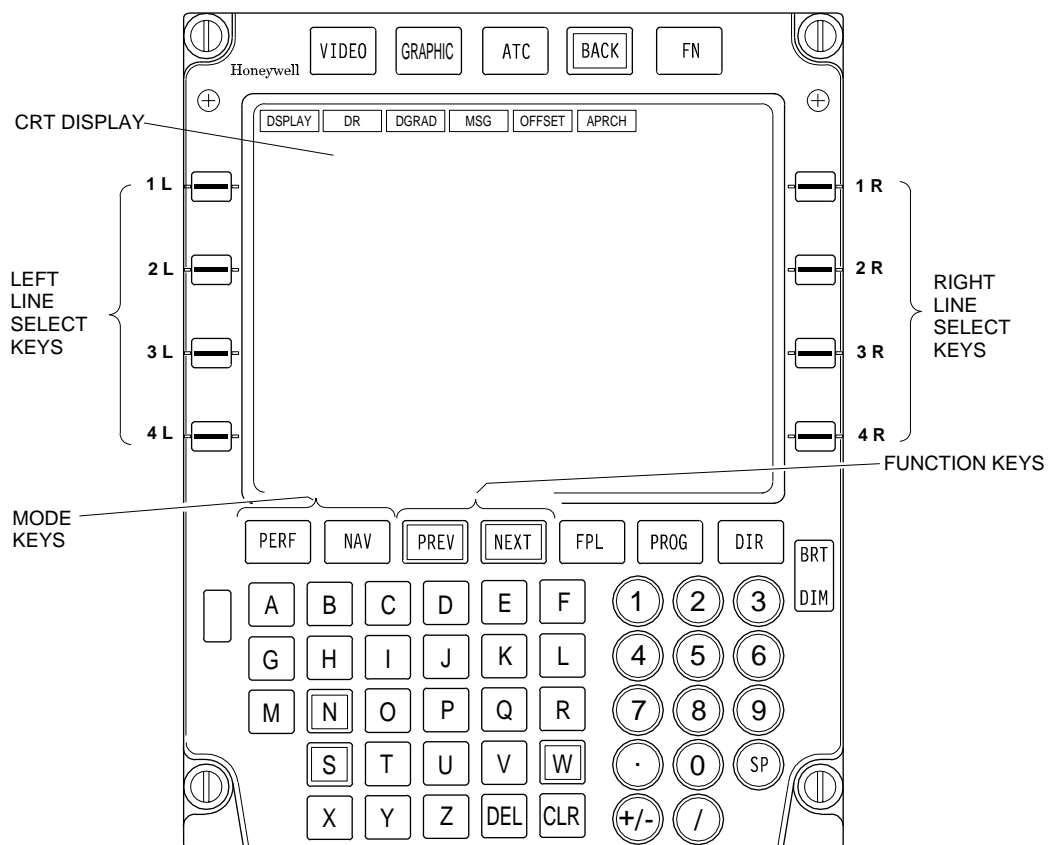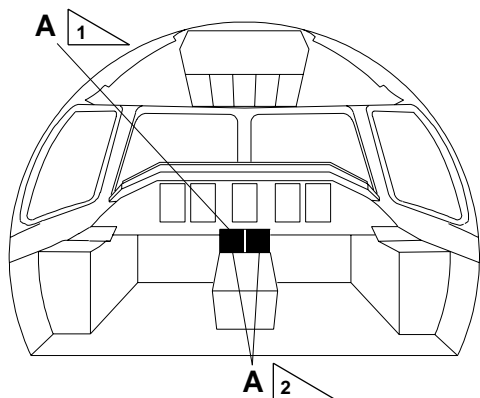| 1 | AIRCRAFT WITH SINGLE FMS |
| 2 | AIRCRAFT WITH DUAL FMS |

145AMM230499.MCE

*EFFECTIVITY: AIRCRAFT WITH CDU-820*
CMU Software Version - Check
Figure 204



**DET. A**



⟨1⟩ AIRCRAFT WITH SINGLE FMS

⟨2⟩ AIRCRAFT WITH DUAL FMS

145AMM230649.MCE