CENTRAL MAINTENANCE SYSTEM - MAINTENANCE PRACTICES

EFFECTIVITY: ALL

1.   General

   A.   This section gives the procedures to do the CMC download with the MFD or Personal Computer.

   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
45-45-00-970-801-A	CMC DOWNLOADING WITH THE MFD	ALL
45-45-00-970-802-A ♦	CMC DOWNLOADING WITH THE PERSONAL COMPUTER	ALL

TASK 45-45-00-970-801-A
EFFECTIVITY: ALL

2. CMC DOWNLOADING WITH THE MFD

    A. General

        (1) This task gives the procedures to do the CMC downloading with the MFD maintenance page.

    B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
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 EX-TERNAL POWER SOURCE
SB145-45-0001	-

    C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223		Cockpit, LH side - Main Instrument Panel
223	223LZ	Cockpit, LH side - Maintenance Panel

    D. Tools and Equipment

    Not Applicable

    E. Auxiliary Items

    Not Applicable

    F. Consumable Materials

    Not Applicable

    G. Expandable Parts

    Not Applicable
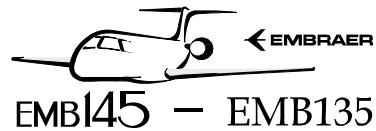
    H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

    I. Preparation

    SUBTASK 841-002-A

        (1) Make sure that the aircraft is safe for maintenance.

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

(3)   Make sure that the CMC system (AMM SDS 45-45-00/1) is operational and on.

J.   CMC Data - MFD Downloading (Figure 201) (Figure 202) (Figure 203)

SUBTASK 970-002-A

(1)   On the main instrument panel, set MFD 1 to maintenance page.

NOTE: This page is available only on the ground (WOW) (AMM SDS 32-30-00/1).

(a)   Push the MFD button.

(b)   (Applicable to aircraft with FMS) Push the JSTK button.

(c)   Push the MAINT button.

(d)   (Applicable to aircraft with -011 CMC and on) A message with the CMC software version comes into view. Push the NEXT button.
Result:

1   MFD 1 shows the maintenance page with some maintenance messages. Refer to AMM SDS 45-45-00/1 to see the possible maintenance messages.

(2)   Examine the maintenance messages.

(3)   If you want to reset the displayable maintenance messages, do the steps below:

(a)   (Applicable only to aircraft PRE-MOD SB145-45-0001) Open maintenance panel door 223LZ (AMM MPP 06-41-03/100) to get access to the CMC RESET/ INHIBIT switch.

(b)   (Applicable only to aircraft POST-MOD SB145-45-0001) Open maintenance panel door 223LZ (AMM MPP 06-41-03/100) to get access to the CMC RESET/ ENABLE switch.

NOTE: •   On aircraft with -006 CMC installed, this function is available only with the aircraft in flight configuration or with N2 > 50% (engine starting).

•   To put the aircraft in the flight configuration, on the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, and AIR/GND D circuit breakers. After the displayable maintenance messages are reset, close the four circuit breakers in 10 seconds maximum.

•   It is possible to reset all the maintenance messages, the displayable and/or the non-displayable messages, with a command from the DAS installed in a personal computer.

(c)   Set, and hold for 10 seconds, the CMC switch to position RESET.
Result:
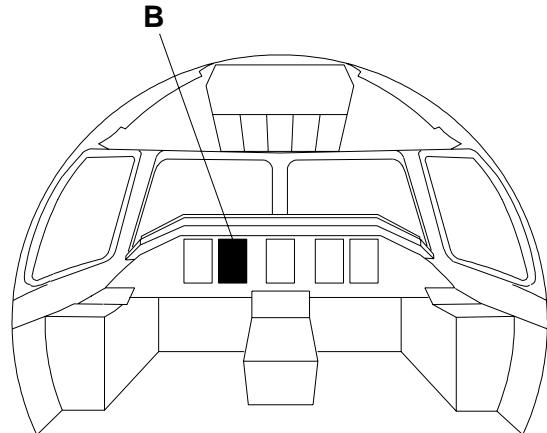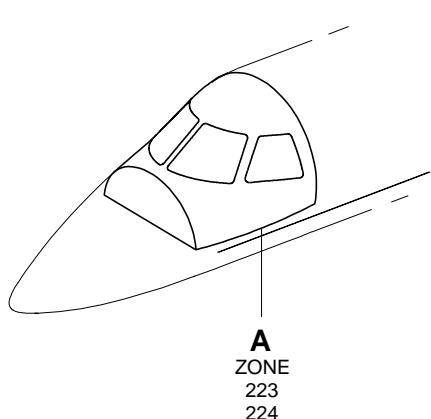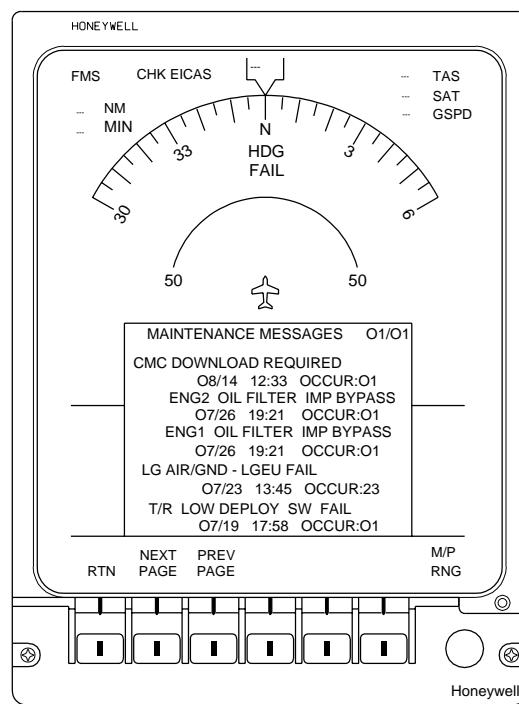
1   The displayable messages are reset.

(d)   Close maintenance panel door 223LZ (AMM MPP 06-41-03/100).
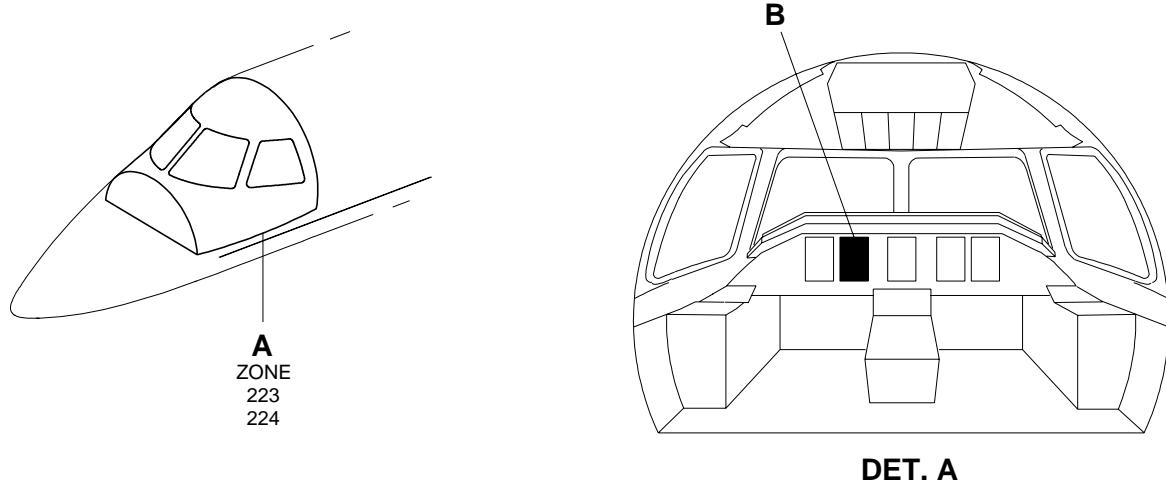
K.   Follow-on

SUBTASK 842-002-A
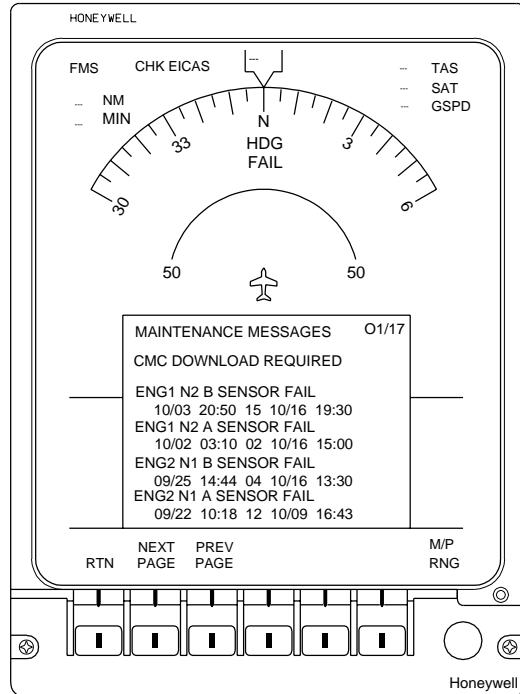
(1)   Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

EFFECTIVITY: AIRCRAFT WITH -005 THRU -010 CMC
CMC Data - MFD Downloading
Figure 201

DET. A

DET. B

HONEYWELL

FMS   CHK EICAS   --- TAS
                                    --- SAT
--- NM   --- GSPD
--- MIN   N
                    HDG
         33   FAIL   3
    30   6

    50   ✈   50

MAINTENANCE MESSAGES   O1/O1

CMC DOWNLOAD REQUIRED
       O8/14 12:33 OCCUR:O1
    ENG2 OIL FILTER IMP BYPASS
       O7/26 19:21 OCCUR:O1
    ENG1 OIL FILTER IMP BYPASS
       O7/26 19:21 OCCUR:O1
LG AIR/GND - LGEU FAIL
       O7/23 13:45 OCCUR:23
    T/R LOW DEPLOY SW FAIL
       O7/19 17:58 OCCUR:O1

            NEXT   PREV   M/P
RTN   PAGE   PAGE   RNG

Honeywell

A
ZONE
223
224

B

145AMM450002.MCE B

EFFECTIVITY: AIRCRAFT WITH -011 CMC AND UP
CMC Data - MFD Downloading
Figure 202

DET. A
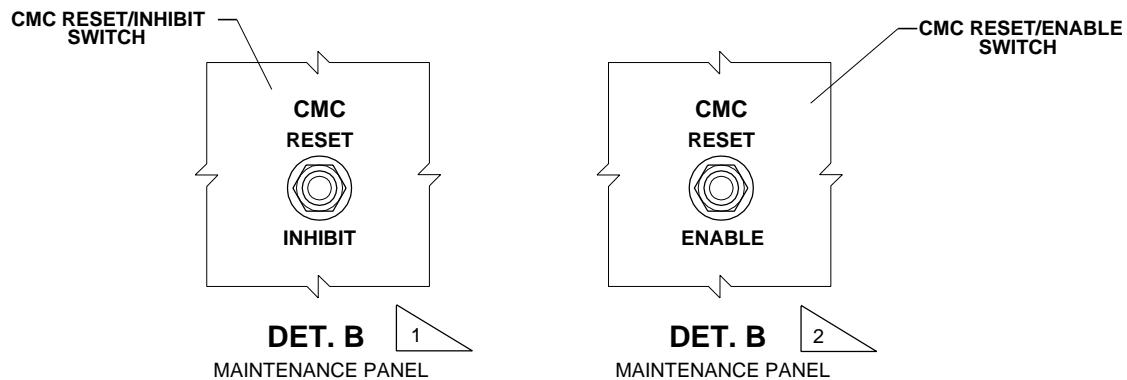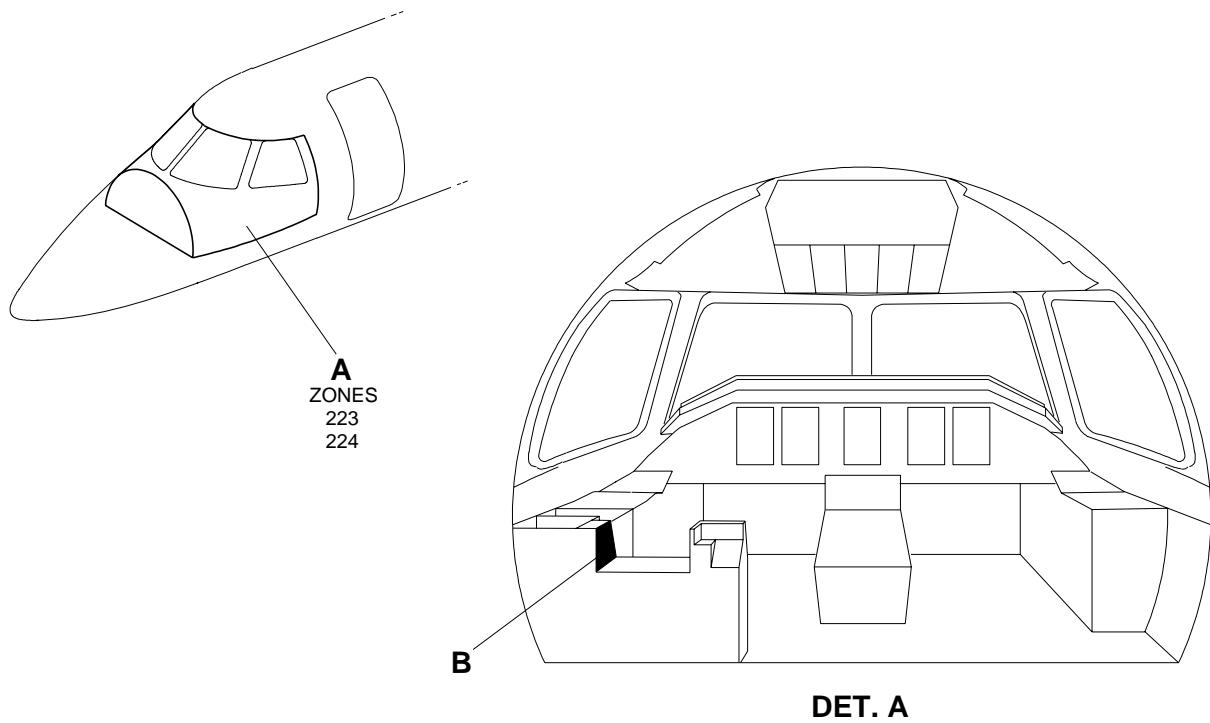
DET. B

145AMM450024.MCE

EFFECTIVITY: ALL
CMC Switch - Maintenance Panel
Figure 203

A
ZONES
223
224

B

DET. A

CMC RESET/INHIBIT
SWITCH

CMC
RESET

INHIBIT

DET. B ◣ 1
MAINTENANCE PANEL

CMC RESET/ENABLE
SWITCH

CMC
RESET

ENABLE

DET. B ◣ 2
MAINTENANCE PANEL
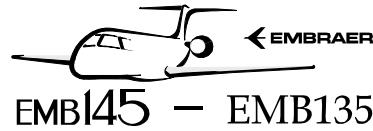
◣ 1   AIRCRAFT PRE-MOD S.B. 145-45-0001

◣ 2   AIRCRAFT POST-MOD S.B. 145-45-0001

145AMM450018.MCE

TASK 45-45-00-970-802-A
EFFECTIVITY: ALL

3. <u>CMC DOWNLOADING WITH THE PERSONAL COMPUTER</u>

   A. General

   (1) This task gives the procedures to do the CMC downloading with a personal computer.

   (2) To do the CMC downloading with a personal computer, use Data Acquisition Software (DAS) GSE 535.

   (3) If you have an older DAS software version, refer to GSE 535 in the ITEM to see how the software version is related with the CMC version.

   B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM SDS 45-45-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EX-TERNAL POWER SOURCE

   C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
223	223LZ	Cockpit, LH side - Maintenance Panel

   D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 130	Personal Computer (PC 486)	Downloading	
GSE 134	Interconnection Cable, CMC/PC	Downloading	
GSE 535	Data Acquisition Software (DAS)	Downloading	

   E. Auxiliary Items

   Not Applicable

   F. Consumable Materials

   Not Applicable

   G. Expandable Parts
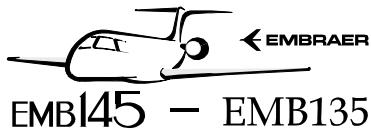
   Not Applicable

   H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

   I. Preparation (Figure 204)

   SUBTASK 841-003-A

(1) Make sure that the aircraft is safe for maintenance.

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

(3) Connect the personal computer (GSE 130), as follows:

    (a) Open maintenance panel door 223LZ (AMM MPP 06-41-03/100).

    (b) With the interconnection cable (GSE 134), connect the personal computer to the CMC maintenance connector as follows: connector P7207 connected to the CMC and connector P4 connected to PC.

(4) Make sure that the CMC system (AMM SDS 45-45-00/1) is operational and on.

J. CMC Data - Personal Computer Downloading (Figure 204)

SUBTASK 970-003-A

(1) Set the personal computer to ON.

NOTE: The personal computer must have the Data Acquisition Software (DAS) (GSE 535) available for use. If you have an older DAS software version, refer to GSE 535 in the ITEM to see how the software version is related with the CMC version.

(2) For aircraft with -005 or -006 or -007 or -009 CMC installed, do the CMC downloading as follows:

    (a) Get access to the Data Acquisition Software (DAS) (GSE 535).

    (b) If you use GSE 331, go to item (4) (c) in this task to do the download.

CAUTION: THE DAS CLEAR FUNCTION MUST BE USED ONLY AFTER CMC DOWNLOAD PROCESS, TO CLEAR THE CMC DATA MEMORY. IF IT IS USED BEFORE THE CMC DOWNLOAD PROCESS, ALL CMC DATA WILL BE LOST AND THE CMC DATA DOWNLOAD RESULTS WILL BE EMPTY.

    (c) NOTE: If the CMC version installed on the aircraft is earlier than version 11, you will not have all the download options available on the GSE 331 software.

Select the menu DOWNLOAD to make the download of the data below:

- Trend & Exceedance.

- Maintenance Messages.

- FADEC (1A, 1B, 2A, and 2B).

NOTE: The DAS permits you to preview the Exceedance and Trend data, and Maint (Maintenance) Messages through the menu PREVIEW, and also to clear them from the CMC Non-Volatile Memory (NVM) through the menu CLEAR.

    (d) Exit from the DAS.

(e) Make a copy of the files below, generated during the CMC downloading, in a floppy disk or specific directory:

- DASTREND.DAT.

- DASEXCEE.DAT.

- TREND.NEW.

- DASMAINT.DAT.

- DASFADEC.1A.

- DASFADEC.1B.

- DASFADEC.2A.

- DASFADEC.2B.

NOTE: To store the information contained in the CMC, you must give other name to the file at the end of each download. This will prevent loss of data when you make a new download.

(3) For aircraft with -010 CMC installed, do the CMC downloading as follows:

(a) Get access to the Data Acquisition Software (DAS) (GSE 535).

(b) If you use GSE 331, go to item (4) (c) in this task to do the download.

CAUTION: THE DAS CLEAR FUNCTION MUST BE USED ONLY AFTER CMC DOWNLOAD PROCESS, TO CLEAR THE CMC DATA MEMORY. IF IT IS USED BEFORE THE CMC DOWNLOAD PROCESS, ALL CMC DATA WILL BE LOST AND THE CMC DATA DOWNLOAD RESULTS WILL BE EMPTY.

(c) NOTE: If the CMC version installed on the aircraft is earlier than version 11, you will not have all the download options available on the GSE 331 software.

Select the menu DOWNLOAD to make the download of the data below:

- Trend & Exceedance.

- Maintenance Messages.

- FADEC (1A, 1B, 2A, and 2B).

- FLS (Flight Leg Summary).

NOTE: 1. The DAS permits the downloading of the data above at the same time, when you choose the option ALL.

2. The DAS permits you to preview the Exceedance, Trend, and FLS data, and Maint (Maintenance) Messages through the menu PREVIEW, and also to clear them from the CMC Non-Volatile Memory (NVM) through the menu CLEAR.

(d) Exit from the DAS.

(e)   Access the data files below, generated during the downloading, to obtain the CMC messages and data.

- Maaamddc.dat, for the Maintenance messages.

- Taaamddc.dat, for the Trend data.

- Eaaamddc.dat, for the Exceedance data.

- Faaamddc.dat, for the Flight Leg Summary data.

- Faaamddc.1A, for the FADEC 1A data.

- Faaamddc.1B, for the FADEC 1B data.

- Faaamddc.2A, for the FADEC 2A data.

- Faaamddc.2B, for the FADEC 2B data.

NOTE: 1.   These files are stored in the generated directory AC_aaa.

2.   The letters "aaamddc" mean:

–   aaa = aircraft serial number.

–   m = month: j, f, m, a, y, u, l, g, s, o, n, and d (from January to December, respectively).

–   dd = day.

–   c = used as counter when more than one download is made in a day.

(4)   For aircraft with CMC -011 or higher installed, do the CMC downloading as follows:

(a)   Get access to the Data Acquisition Software (DAS) (GSE 535).

(b)   Click on the Start button, select Programs and click on Das.exe. You can also access the Data Acquisition Software (DAS) double-clicking on the "Das CMC EMBRAER" icon on the Windows desktop.

NOTE: These are standard procedures to get access to the Data Acquisition Software. If DAS was installed in a different location, or your Windows environment is not in English, do the applicable steps to get access to the DAS application.

(c)   Make sure that the DAS recognizes the CMC-011 version or higher installed in the aircraft. To do this, check if the version number reported on the CMC Version field of the DAS Selection window matches the CMC version installed on the aircraft.

NOTE: For aircraft with CMC-011 or higher installed, if a "CMC Version" dialog box comes into view with the "No version found" information, check the CMC connection to the PC.

(d)   On the DAS Selection window, click on the FULL DAS button.

NOTE: If a "Select Aircraft" window comes into view, enter the aircraft serial number or aircraft tail number, as applicable.

CAUTION: THE DAS CLEAR FUNCTION MUST BE USED ONLY AFTER CMC DOWNLOAD PROCESS, TO CLEAR THE CMC DATA MEMORY. IF IT IS USED BEFORE THE CMC DOWNLOAD PROCESS, ALL CMC DATA WILL BE LOST AND THE CMC DATA DOWNLOAD RESULTS WILL BE EMPTY.

(e)   Use the appropriate option from the DOWNLOAD menu to make the download of the desired information:

   •   Trend & Exceedance.

   •   Maintenance Messages.

   •   FADEC Labels/Snapshots (1A, 1B, 2A, and 2B).

   •   FLS (Flight Leg Summary).

   NOTE: 1.   To download all data to a single file, select the option Single File under the DOWNLOAD menu.

   2.   To download all data to separate files, select the option ALL (MSG/TRN/EXC/FLS/FDSN/FAD LABELS) under the DOWNLOAD menu.

(f)   The Download window opens. Wait for the download to complete.

(g)   When the download completes, click on the OK button.

(h)   The DAS lets you preview the downloaded data through the PREVIEW menu.

(i)   After downloading data from the CMC Non-Volatile Memory, you can clear the memory areas to free memory space on the CMC. To do this, use the appropriate option from the CLEAR menu on the DAS.

(j)   Exit from the DAS. To do this, select the Exit option from the EXIT menu on the DAS.

(k)   The data files are named according to the patterns that follow:

   •   Maaaaddmmmyyc.DAT for Maintenance messages.

   •   Taaaaddmmmyyc.DAT for Trend data.

   •   Taaaaddmmmyyc.DIG for Trend data (data file only, no text is stored. Exceedance and Trend data is stored in this file).

   •   Eaaaaddmmmyyc.DAT for Exceedance data.

   •   Faaaaddmmmyyc.DAT for Flight Leg Summary datasets.

   •   Faaaaddmmmyyc.DIG for Flight Leg Summary data (data file only, no text is stored).

   •   Faaaaddmmmyyc.1A for FADEC 1A labels.

- Faaaaddmmmyyc.1B for FADEC 1B labels.

- Faaaaddmmmyyc.2A for FADEC 2A labels.

- Faaaaddmmmyyc.2B for FADEC 2B labels.

- Naaaaddmmmyyc.DAT for FADEC fault word snapshots.

- Saaaaddmmmyyc.DAT for storing Maintenance Messages, Exceedances Messages, FADEC fault word snapshots and labels from the four FADECs into a single file.

NOTE: 1. Where:

- aaaa = aircraft identification.

- dd = day.

- mmm = three-letter abbreviation for the month: JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV and DEC (from January to December, respectively).

- yy = year.

- c = used as a counter when more than one download is made on the same day. If there is just one download for the file on the same day, "c" equals "1".
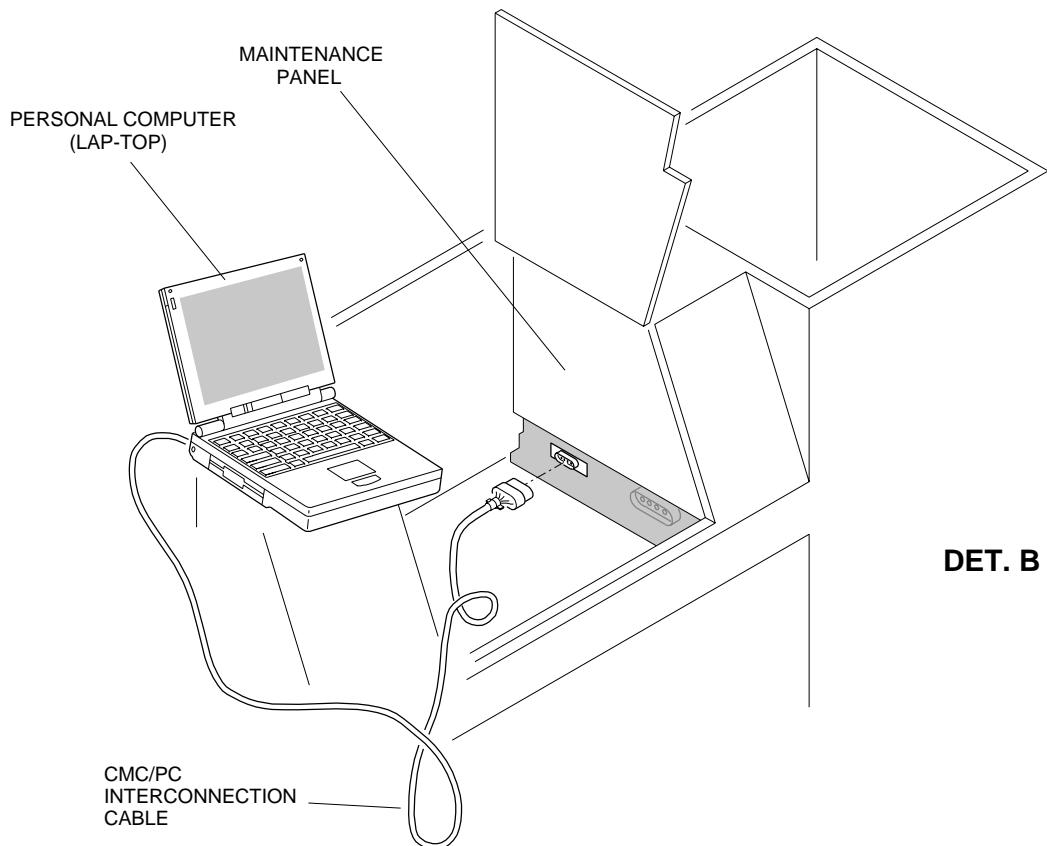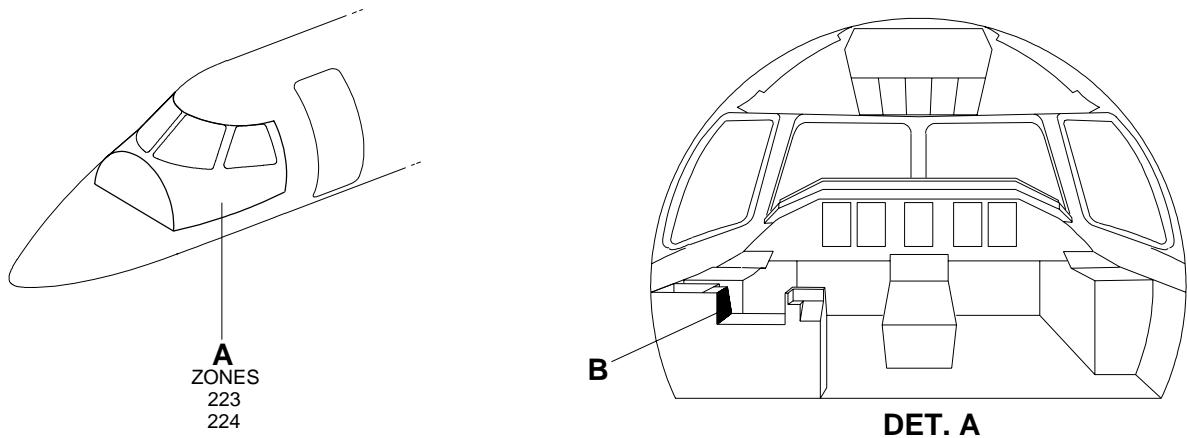
(5) Set the personal computer to OFF.

K. Follow-on

SUBTASK 842-003-A

(1) Disconnect the personal computer from the CMC maintenance connector.

(2) Close maintenance panel door 223LZ (AMM MPP 06-41-03/100).

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

EFFECTIVITY: ALL
CMC Data - Personal Computer Downloading
Figure 204

A
ZONES
223
224

B

DET. A

MAINTENANCE
PANEL

PERSONAL COMPUTER
(LAP-TOP)

DET. B

CMC/PC
INTERCONNECTION
CABLE

145AMM450029.MCE