FMS (HONEYWELL) - MAINTENANCE PRACTICES

EFFECTIVITY: AIRCRAFT WITH FMS HONEYWELL

1. <u>General</u>

    A. This section gives the procedures to load databases into FMS Computer and to replace the FMS Computer Battery.

    B. The Honeywell data base contains worldwide coverage of navaids, airways, standard instrument departure/standard terminal arrival route (SID/STAR) procedures, airports, and runways. The data base can store flight plans and waypoints specified by the pilot.

    C. The Navigation data base in the FMS must be updated periodically. The update is supplied by Honeywell.

    D. The FMS must be configured to operate in the pattern mode. Thus, the EGPWS can operate correctly if there is a GPS failure.

    E. 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
34-61-00-470-801-A	NAVIGATION DATA BASE - LOADING	AIRCRAFT WITH FMS HONEYWELL
34-61-00-470-802-A	FMS - MODE CONFIGURATION	AIRCRAFT WITH FMS HONEYWELL
34-61-00-960-801-A	FMS BATTERY - REPLACE	AIRCRAFT WITH FMS HONEYWELL

TASK 34-61-00-470-801-A
EFFECTIVITY: AIRCRAFT WITH FMS HONEYWELL

2. NAVIGATION DATA BASE - LOADING

    A. General

        (1) This task gives the procedures to load the Navigation data base.

        (2) (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) The data base is updated with the Data Loader and is contained on 3.5 inch diskettes.

        (3) (AIRCRAFT WITH DL-950 DATA LOADER) The data base is updated with the Data Loader and is contained on USB Drive.

            NOTE: • USB Drive must be formatted for (file allocation table) FAT File System (MS-DOS compatible).

                    • The communications protocols will operate on any file located in the root directory.

                    • The USB drive capacity should be at least 16 Megabytes(MB).

    B. References

REFERENCE	DESIGNATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 34-61-00-700-801-A/500	FLIGHT MANAGEMENT SYSTEM (FMS) - OPERATIONAL TEST
S.B.145-00-0032	-

    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 841-002-A

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

J. Loading Procedure (Figure 201) (Figure 202)

SUBTASK 470-002-A

    (1)   (Aircraft with FMS computer software version 4.X) Do the loading of the Navigation data base as follows:

        (a)   On the Data Loader, push the POWER key.

            Result:

            <u>1</u>   The system will come on and a self-test will occur.

        (b)   On the Data Loader, push the SELECT key, if necessary, until the left green LED comes on.

            Result:

            <u>1</u>   The left FMS is set.

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

            Result:

            <u>1</u>   The NAV INDEX 1/2 page is shown.

        (d)   On the CDU, push the NEXT function key.

            Result:

            <u>1</u>   The NAV INDEX 2/2 page is shown.

        (e)   On the CDU, push the DATA LOAD left line select key (4L).

            Result:

            <u>1</u>   The DATA LOAD 1/1 page is shown with the message "DATA TO BE LOADED".

        (f)   On the CDU, push the NAV DB left line select key (3L).

            Result:

            <u>1</u>   The DATA LOAD 1/1 page is shown with the message "TRANSFER OF NAV DB".

      <u>NOTE:</u> Make sure that the Navigation data base date is updated.

        (g)   (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) On Data Loader, insert Navigation data base disk 1.

        (h)   (AIRCRAFT WITH DL-950 DATA LOADER) On Data Loader, insert Navigation data base USB Drive.

            <u>NOTE:</u> •   The Dual USB Ports on the front of the DL-950 are for redundancy only. No functional differences exist between the two ports.

                  •   When inserting the USB drive, 2 to 10 seconds may be required before it is recognized by the Data Loader.

                  •   USB Drive must be formatted for (file allocation table) FAT File System (MS-DOS compatible).

- • The communications protocols will operate on any file located in the root directory.

- • The USB drive capacity should be at least 16 Megabytes(MB).

(i) On the CDU, push the FR LOADER right line select key (3R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "CONFIRM TRANSFER OF NAV DB FROM DATA LOADER".

(j) On the CDU, push the YES right line select key (4R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "TRANSFER OF FROM DATA LOADER IS XX% COMPLETE".

CAUTION: IF THE POWER STOPS, "ABORT" IS SET. IF OTHER PROBLEMS THAT STOP THE LOADING PROCESS OCCUR, ALL THE DATA LOAD PROCESS MUST BE DONE AGAIN.

(k) (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) When necessary, put the subsequent disk into the Data Loader to be read by the FMS.

Result:

1 When the FMS loading is completed, the message "DB TRANSFER COMPLETE" will come into view and the FMS will start again.

(l) (AIRCRAFT WITH DL-950 DATA LOADER) The message "DB TRANSFER COMPLETE" will come into view and the FMS will start again when the FMS loading is completed.

(2) (Aircraft with FMS computer software version 4.X) Do the loading of the aircraft data base as follows:

NOTE: Load the aircraft data base only if the FMS was replaced or the aircraft data base is not valid.

(a) On the Control Display Unit (CDU), push the NAV function key.

Result:

1 The NAV INDEX 1/2 page is shown.

(b) On the CDU, push the NEXT function key.

Result:

1 The NAV INDEX 2/2 page is shown.

(c) On the CDU, push the DATA LOAD left line select key (4L).

Result:

1 The DATA LOAD 1/1 page is shown with the message "DATA TO BE LOADED".

(d) (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) On the Data Loader, insert Navigation data base disk 1.

(e) (AIRCRAFT WITH DL-950 DATA LOADER) On the Data Loader, insert Navigation USB Drive.

NOTE: • The Dual USB Ports on the front of the DL-950 are for redundancy only. No functional differences exist between the two ports.

• When inserting the USB drive, 2 to 10 seconds may be required before it is recognized by the Data Loader.

• USB Drive must be formatted for (file allocation table) FAT File System (MS-DOS compatible).

• The communications protocols will operate on any file located in the root directory.

• The USB drive capacity should be at least 16 Megabytes(MB).

(f) On the CDU, push the AIRCRAFT DB right line select key (2R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "TRANSFER OF AIRCRAFT DB".

(g) On the CDU, push the FR LOADER right line select key (3R).

Result:

1 The AIRCRAFT SELECT 1/1 page is shown.

(h) Set the NEXT and PREV function keys and the related line select key as follows:

• (For aircraft PRE-MOD S.B.145-00-0032 or not in the S.B. effectivity) Select key "EMB145L2".

• (For aircraft POST-MOD S.B.145-00-0032) Select key "E145LR-1".

Result:

1 The DATA LOAD 1/1 page is shown with the message "CONFIRM TRANSFER OF AIRCRAFT DB FROM DATA LOADER".

(i) On the CDU, push the YES right line select key (4R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "TRANSFER OF FROM DATA LOADER IS XX% COMPLETE".

When the FMS loading is completed, the message "DB TRANSFER COMPLETE" will be displayed and the FMS will start again.

(j) On the CDU, push the PERF mode key.

Result:

1 The PERF INDEX 1/2 page is shown.

(k) On the CDU, push the PERF INIT left line select key (1L).

Result:

1   The PERFORMANCE INIT 1/5 page is shown. The ACFT TYPE shown is:

- (For aircraft PRE-MOD S.B.145-00-0032 or not in the S.B. effectivity) "EMB145L2".

- (For aircraft POST-MOD S.B.145-00-0032) "E145LR-1".

NOTE: The "ACFT TYPE" parameter shown is the same for EMB-145 () MODELS and EMB-135ER/LR/KE/KL MODELS.

(l)   With the keyboard, write on the scratchpad the aircraft tail number and push the TAIL right line select key (1R).

Result:

1   The aircraft tail number is stored.

(3)   (Aircraft with FMS computer software version 5.X) Do the loading of the Navigation data base as follows:

(a)   On the Data Loader, push the POWER key.

Result:

1   The system will come on and a self-test will occur.

(b)   On the Data Loader, push the SELECT key, if necessary, until the left green LED comes on.

Result:

1   The left FMS is set.

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

Result:

1   The NAV INDEX 1/2 page is shown.

(d)   On the CDU, push the NEXT function key.

Result:

1   The NAV INDEX 2/2 page is shown.

(e)   On the CDU, push the DATA LOAD left line select key (4L).

Result:

1   The DATA LOAD 1/1 page is shown with the message "DATA TO BE LOADED".

(f)   On the CDU, push the NAV DB left line select key (3L).

Result:

1   The DATA LOAD 1/1 page is shown with the message "TRANSFER OF NAV DB".

NOTE: Make sure that the Navigation data base date is updated.

(g)   (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) On the Data Loader, insert Navigation data base disk 1.

(h)   (AIRCRAFT WITH DL-950 DATA LOADER) On Data Loader, insert Navigation data base USB Drive.

NOTE: •   The Dual USB Ports on the front of the DL-950 are for redundancy only. No functional differences exist between the two ports.

- When inserting the USB drive, 2 to 10 seconds may be required before it is recognized by the Data Loader.

- USB Drive must be formatted for (file allocation table) FAT File System (MS-DOS compatible).

- The communications protocols will operate on any file located in the root directory.

- The USB drive capacity should be at least 16 Megabytes(MB).

(i) On the CDU, push the FR LOADER right line select key (3R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "DEST SELECT FOR NAV DB".

(j) On the CDU, push the TO ALL FMS left line select key (3L).

Result:

1 The DATA LOAD 1/1 page is shown with the message "CONFIRM TRANSFER OF NAV DB FROM DATA LOADER TO ALL FMS".

(k) On the CDU, push the YES right line select key (4R).

Result:

1 The DATA LOAD 1/1 page is shown with the message "TRANSFER OF FROM DATA LOADER IS XX% COMPLETE".

CAUTION: IF THE POWER STOPS, "ABORT" IS SET. IF OTHER PROBLEMS THAT STOP THE LOADING PROCESS OCCUR, ALL THE DATA LOAD PROCESS MUST BE DONE AGAIN.

(l) (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) When necessary, put the subsequent disk into the Data Loader to be read by the FMS.

Result:

1 When the FMS loading is completed, the message "DB TRANSFER COMPLETE" will come into view and the FMS will start again.

(m) (AIRCRAFT WITH DL-950 DATA LOADER) The message "DB TRANSFER COMPLETE" will come into view and the FMS will start again when the FMS loading is completed.

(4) (Aircraft with FMS computer software version 5.X) Do the loading of the aircraft data base as follows:

NOTE: Load the aircraft data base only if the FMS was replaced or the aircraft data base is not valid.

(a) On the Control Display Unit (CDU), push the NAV function key.

Result:

1 The NAV INDEX 1/2 page is shown.

(b) On the CDU, push the NEXT function key.

Result:

1 The NAV INDEX 2/2 page is shown.

(c) On the CDU, push the DATA LOAD left line select key (4L).

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Result:

1   The DATA LOAD 1/1 page is shown with the message "DATA TO BE LOADED".

(d)   (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) On the Data Loader, insert Navigation data base disk 1.

(e)   (AIRCRAFT WITH DL-950 DATA LOADER) On the Data Loader, insert Navigation USB Drive.

NOTE: •   The Dual USB Ports on the front of the DL-950 are for redundancy only. No functional differences exist between the two ports.

•   When inserting the USB drive, 2 to 10 seconds may be required before it is recognized by the Data Loader.

•   USB Drive must be formatted for (file allocation table) FAT File System (MS-DOS compatible).

•   The communications protocols will operate on any file located in the root directory.

•   The USB drive capacity should be at least 16 Megabytes(MB).

(f)   On the CDU, push the AIRCRAFT DB right line select key (2R).
Result:

1   The DATA LOAD 1/1 page is shown with the message "TRANSFER OF AIRCRAFT DB".

(g)   On the CDU, push the FR LOADER right line select key (3R).
Result:

1   The AIRCRAFT SELECT 1/1 page is shown.

(h)   Set the NEXT and PREV function keys and the related line select key as follows:

•   (For aircraft PRE-MOD S.B.145-00-0032 or not in the S.B. effectivity) Select key "EMB 145L2".

•   (For aircraft POST-MOD S.B.145-00-0032) Select key "E145LR-1".
Result:

1   The DATA LOAD 1/1 page is shown with the message "DEST SELECT FOR AIRCRAFT DB"

(i)   On the CDU, push the TO ALL FMS left line select key (3L).
Result:

1   The DATA LOAD 1/1 page is shown with the message "CONFIRM TRANSFER OF AIRCRAFT DB FROM DATA LOADER TO ALL FMS".

(j)   On the CDU, push the YES right line select key (4R).
Result:

1   The DATA LOAD 1/1 page is shown with the message "TRANSFER OF FROM DATA LOADER IS XX% COMPLETE".

When the FMS loading is completed, the message "DB TRANSFER COMPLETE" will be displayed and the FMS will start again.

(k)   On the CDU, push the PERF mode key.

Result:

1   The PERF INDEX 1/2 page is shown.

(l)   On the CDU, push the PERF INIT left line select key (1L).

Result:

1   The PERFORMANCE INIT 1/5 page is shown. The ACFT TYPE shown is:

- (For aircraft PRE-MOD S.B.145-00-0032 or not in the S.B. effectivity) "EMB145L2".

- (For aircraft POST-MOD S.B.145-00-0032) "E145LR-1".

NOTE: The "ACFT TYPE" parameter shown is the same for EMB-145 () MODELS and EMB-135ER/LR/KE/KL MODELS.

(m)   With the keyboard, write on the scratchpad the aircraft tail number and push the TAIL right line select key (1R).

Result:

1   The aircraft tail number is stored.

K.   Follow-on

SUBTASK 842-002-A

(1)   (AIRCRAFT WITH DL-800 OR DL-900 DATA LOADER) Remove the disk from the Data Loader and push the POWER key.

(2)   (AIRCRAFT WITH DL-950 DATA LOADER) Remove the USB Drive from Data Loader and push POWER key.

(3)   Do the FMS Operational test (AMM TASK 34-61-00-700-801-A/500).

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

EFFECTIVITY: AIRCRAFT WITH CD-810 CONTROL DISPLAY UNIT
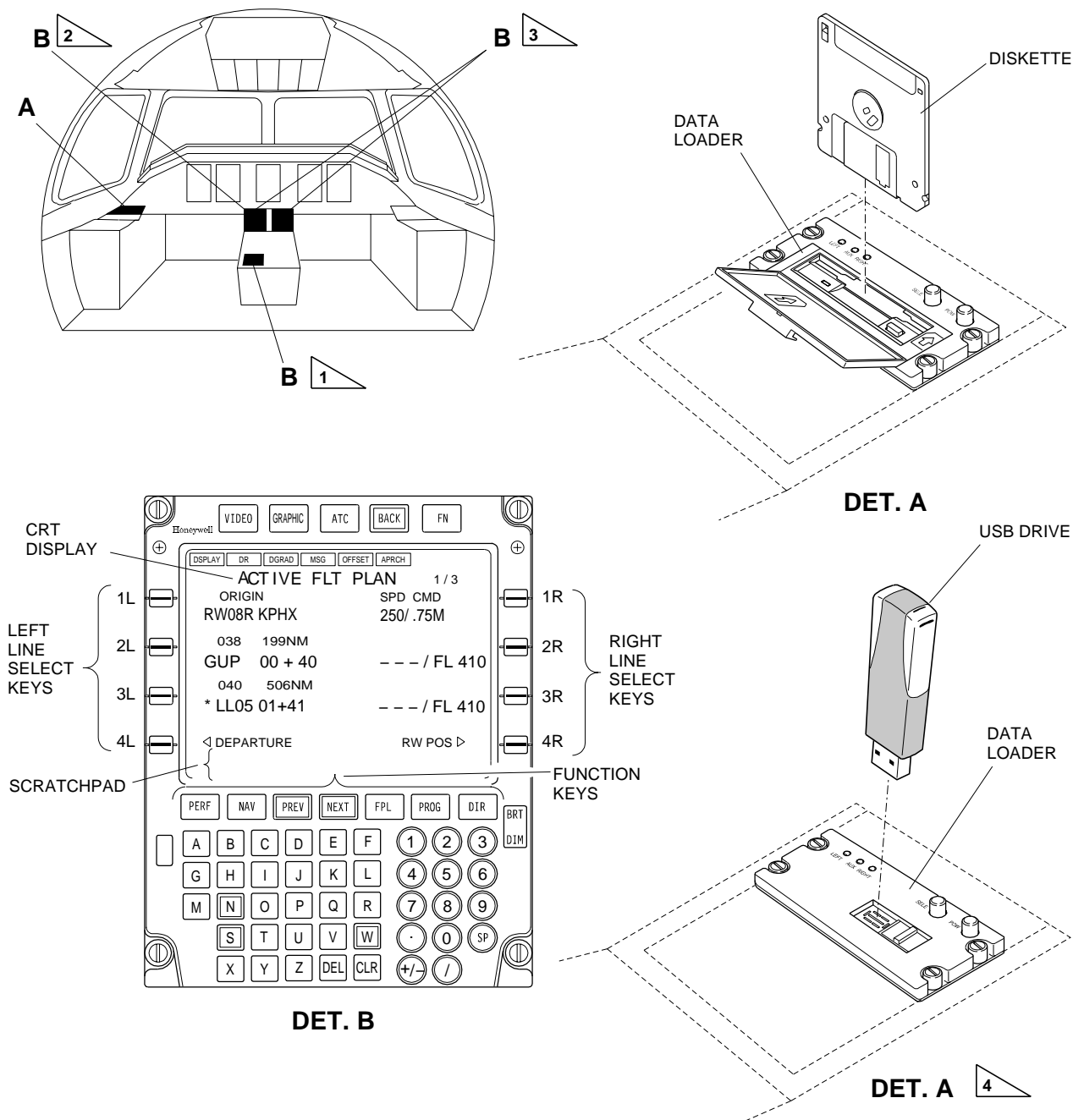Data Loader and Control Display Unit
Figure 201
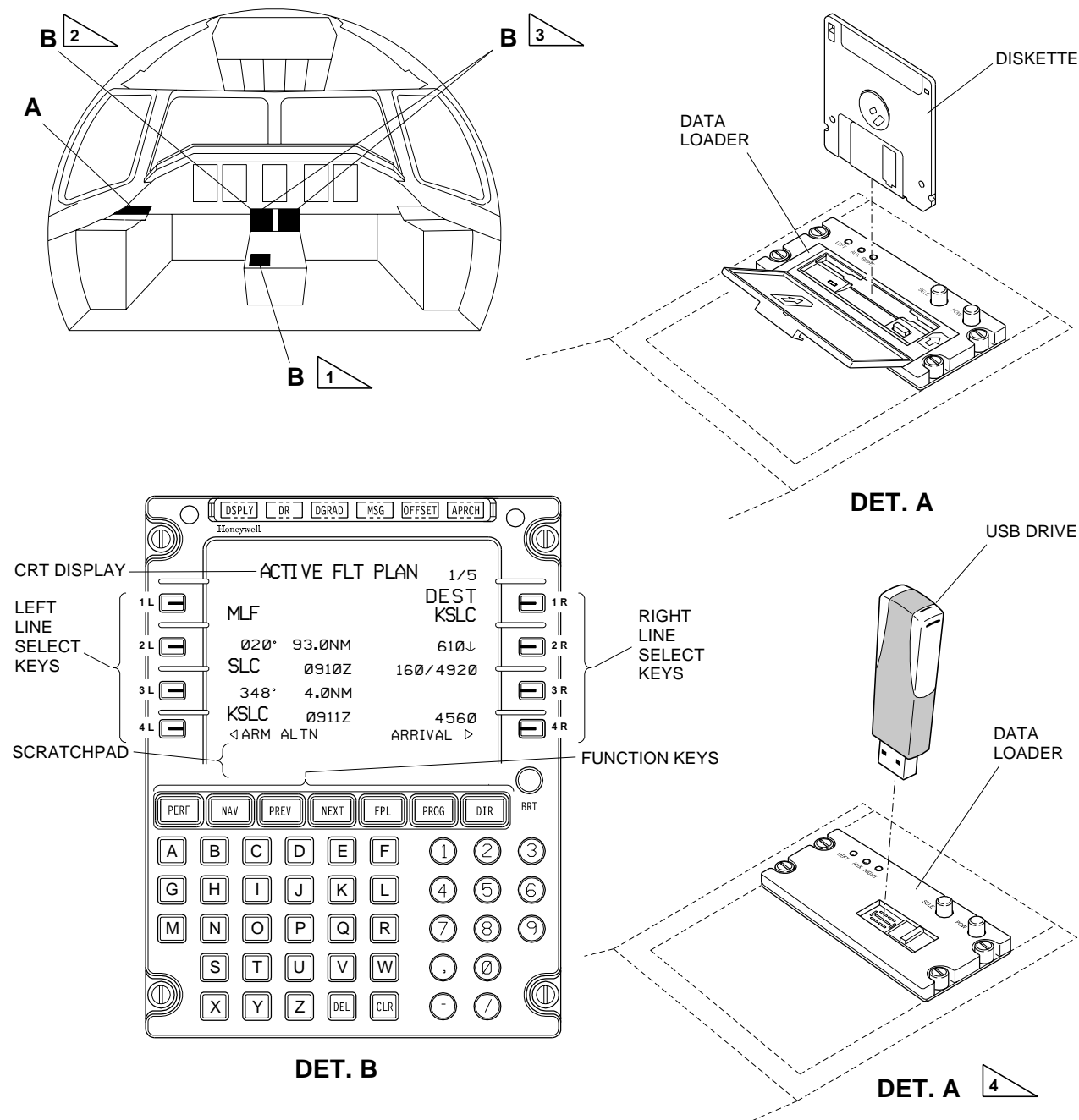
DET. A

DET. B

DET. A

[1] AIRCRAFT WITH SINGLE FMS INSTALLED ON CONTROL PEDESTAL AFT PANEL.

[2] AIRCRAFT WITH SINGLE FMS INSTALLED ON CONTROL PEDESTAL FORWARD PANEL.

[3] AIRCRAFT WITH DUAL FMS.

[4] AIRCRAFT WITH DL–950 DATA LOADER.

EM145AMM340298D.DGN

EFFECTIVITY: AIRCRAFT WITH CD-820 CONTROL DISPLAY UNIT
Data Loader and Control Display Unit
Figure 202

DET. A

DISKETTE

DATA LOADER

USB DRIVE

DATA LOADER

DET. A △4

CRT DISPLAY

LEFT LINE SELECT KEYS

RIGHT LINE SELECT KEYS

SCRATCHPAD

FUNCTION KEYS

DET. B

△1 AIRCRAFT WITH SINGLE FMS INSTALLED ON CONTROL PEDESTAL AFT PANEL.

△2 AIRCRAFT WITH SINGLE FMS INSTALLED ON CONTROL PEDESTAL FORWARD PANEL.

△3 AIRCRAFT WITH DUAL FMS.

△4 AIRCRAFT WITH DL−950 DATA LOADER.

EM145AMM340783A.DGN

TASK 34-61-00-470-802-A
EFFECTIVITY: AIRCRAFT WITH FMS HONEYWELL

3. FMS - MODE CONFIGURATION

    A. General

        (1) This procedure gives the instructions to configure FMS1 and/or FMS2 to operate in the pattern mode.

    B. References

REFERENCE	DESIGNATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 34-61-00-700-801-A/500	FLIGHT MANAGEMENT SYSTEM (FMS) - OPERATIONAL TEST

    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 841-003-A

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

        (2) On the circuit breaker panel, make sure that the FMS1 and/or FMS2 circuit breaker(s) is(are) closed.

    J. Configuration Procedure (Figure 201)

    SUBTASK 470-003-A

        (1) (Applicable to aircraft with the EGPWS installed) Do the configuration of the FMS to operate in the pattern mode as follows:

            (a) Push the NAV function key.

Result:

1   The NAV INDEX 1/2 page is shown.

(b)   Push the NEXT function key.
Result:

1   The NAV INDEX 2/2 page is shown.

(c)   Push the MAINTENANCE right line select key (2R).
Result:

1   The FMS MAINTENANCE 1/3 page is shown.

(d)   Push the NEXT function key.
Result:

1   The FMS MAINTENANCE 2/3 page is shown.

(e)   Push the SETUP left line select key (4L).
Result:

1   The FMS SETUP 1/1 page is shown.

(f)   Push the CONFIG FLIGHT right line select key (1R).
Result:

1   The FLIGHT CONFIG 1/2 page is shown.

(g)   Push the NEXT function key.
Result:

1   The FLIGHT CONFIG 2/2 page is shown.

NOTE: If GEN BUS #2 CONFIG is set to the PATTERN option, the FMS is configured.

(h)   If GEN BUS #2 CONFIG is not set to the PATTERN option, push the OR right line
select key (2R) to continue the configuration.
Result:

1   The GEN BUS #2 CONFIG 1/1 page is shown.

(i)   Push the PATTERN left line select key (2L).
Result:

1   The system is configured to operate in the pattern mode.

(j)   (Aircraft with Dual FMS) Do step (1) again for the other FMS.

K.   Follow-on

SUBTASK 842-003-A

(1)   Do the FMS Operational Test (AMM TASK 34-61-00-700-801-A/500).

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

TASK 34-61-00-960-801-A
EFFECTIVITY: AIRCRAFT WITH FMS HONEYWELL

4.   FMS BATTERY - REPLACE

   A.   General

      (1)   This procedure refers you to the publication which will help you to replace the FMS Computer Battery.

      (2)   The battery pack is installed in the fan housing, located at the rear of the unit.

      (3)   All battery packs have a manufacturer's date code in WW/YY (week/year) format. Battery packs with date codes exceeding 3 years of age should not be used for replacement.

   B.   References

REFERENCE	DESIGNATION
AMM TASK 34-61-01-000-801-A/400	FMS COMPUTER - REMOVAL
AMM TASK 34-61-01-400-801-A/400	FMS COMPUTER - INSTALLATION

   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	At the forward electronic compartment

   I.   Preparation

   SUBTASK 841-004-A

      (1)   Remove the FMS Computer (AMM TASK 34-61-01-000-801-A/400).

   J.   FMS Battery Replacement (Figure 203)

   SUBTASK 960-002-A

      (1)   Replace the battery pack. Refer to Honeywell Primus 1000 System Description and Operation Manual No. A15-1146-065 (Section Maintenance Practices, Procedure for the NZ-2000 FMS Navigation Computer, Repair Procedures).
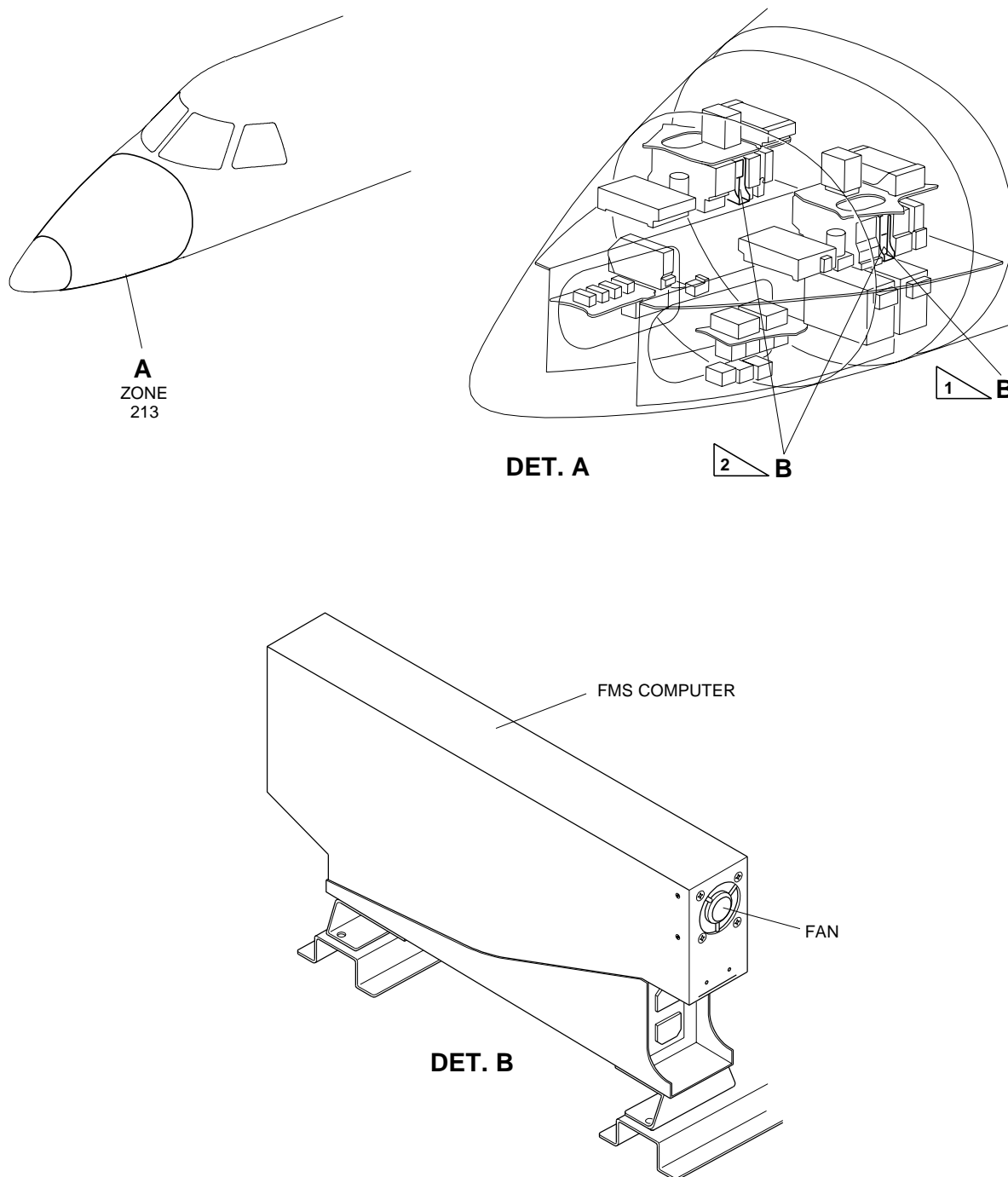
K.   Follow-on

SUBTASK 842-004-A

(1)   Install the FMS Computer (AMM TASK 34-61-01-400-801-A/400).

EFFECTIVITY: AIRCRAFT WITH FMS HONEYWELL
FMS Battery Replacement
Figure 203

A
ZONE
213

DET. A

1 ▷ **B**

2 ▷ **B**

FMS COMPUTER

FAN

DET. B

1 ▷ AIRCRAFT WITH SINGLE FMS.

2 ▷ AIRCRAFT WITH DUAL FMS.

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