



B737 NG CBT - FMS - FMC ABNORMALS

COURSE OUTLINES

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COURSE START

1-The material contained in this training program is based on the information obtained from current state, local and company regulations and it is to be used for training purposes only. At the time of designing this program contained then current information. In the event of conflict between data provided herein and that in publications issued by the authority, the authority shall take precedence.

FLIGHT MANAGEMENT SYSTEM- FMC ABNORMALS

2-In this part we will discuss abnormalities associated with the FMC. Here is the outline * Overview * Single FMC failure * Dual FMC failure * FMC disagree * FMC disagree-vertical * Loss of electrical power

OVERVIEW

3-The two FMCs are the heart of the flight management system. They are very reliable and do not fail usually.

4-In normal dual operation, the left FMS is the primary and the right FMC is synchronized with the primary FMC at all times. Each FMC exchanges data with the other FMC for comparison and validation.

5-In the unlikely event of an FMC failure, the FMS reverts to single mode of operation.

SINGLE FMC FAILURE

6-If a failure occurs in the right FMC, the FMC alert light illuminates on each pilot's forward panel.

7-The message light comes on and scratchpad message SINGLE FMC OPERATION is displayed in both CDUs.

8-If autopilot B is in use the LNAV and VNAV will disengage. These modes can be reengaged when autopilot A is selected.

9-The vertical track flag is shown on the First Officer's navigation display in MAP mode. After 25-30 seconds, the MAP failure flag appears on the same display.

10-You move the FMC source select switch to BOTH ON LEFT to restore the right navigation display.

11-If you observe these indications with no vertical track flag, it means that there is a disagreement between left and right FMC data.

12-Place the FMC Source Select Switch to BOTH ON LEFT. This allows the two FMCs to resynchronize.

13-When the message DUAL FMC OPERATION RESTORED is displayed on both scratchpads, move the switch to NORMAL to restore dual operation

14-If the left FMC fails, the FMC alert lights illuminate.

15-The MENU page is displayed on both CDUs.

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16-If autopilot A is in use the LNAV and VNAV will disengage. These modes can be reengaged when autopilot B is selected.

17-Vertical track flag is shown on the Captain's navigation display followed by MAP failure flag.

18-You place the FMC source select switch to BOTH ON RIGHT to restore the left navigation display. Now let's examine the course of action that you follow in case of an FMC failure.

19-In this example the right FMC is failed. Clear the message.

20-Place the FMC source select switch to BOTH ON LEFT.

21-Wait one minute.

22-Select the POSITION SHIFT page. If bearing/distance information for both FMCs are displayed, place FMC source select switch to NORMAL.

23-If bearing/distance information for only a single FMC is displayed, continue with single FMC operation.

DUAL FMC FAILURE

24-If both FMCs fail, the FMC alert light illuminates.

25-The MENU page is displayed on both CDUs.

26-The vertical track flag is shown on both navigation display followed by MAP failure flag.

27-With both FMC failed, LNAV and VNAV are not available. Therefore, you should resume conventional navigation.

28-When preparing for the approach, use the SPEED REFERENCE selector to set the current gross weight and the reference airspeed bugs.

29-Then, set the N1 bugs using the N1 SET selector.

FMC DISAGREE

30-During an approach or on the ground, when parameters required for dual FMC operation are in disagreement, the scratchpad message FMC DISAGREE is displayed on both CDUs. The FMC alert light illuminates. An approach with an RNP alerting requirement is not authorized when the FMC DISAGREE message is shown

31-Thus, if you are flying an approach with an RNP alerting requirement, go-around unless appropriate visual references can be established and maintained.

32-If the approach does not have an RNP alerting requirement, verify your position.

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FMC DISAGREE-VERTICAL

33-During descent, when left FMC and right FMC target airspeeds or vertical paths disagree, the scratchpad message FMC DISAGREE - VERTICAL message shows on both CDUs. The FMC alert light comes on.

34-Do not move the FMC source select switch as the FMC will attempt to correct the disagreement without crew action. Keep an eye on crossing altitudes to ensure compliance.

LOSS OF FMC ELECTRICAL POWER

35-The FMC requires continuous electrical power to operate. Thus, any interruption in electrical power will affect the FMC operation.

36-If the power to the FMCs has stopped for less than ten seconds, LNAV and VNAV will disengage.

37-No data is erased whether the airplane is in the air or on the ground.

38-When power is restored, the FMC continues normal operation

39-If power is lost for ten seconds or more on the ground, all preflight procedures and entries are erased from FMC.

40-When the power is restored, you must put in all data again.

41-If the power to FMCs are lost for more than ten seconds in flight, LNAV and VNAV will disengage.

42-The internal battery lets the FMC keep the flight plan data in memory for an extended period of time.

43-When the power is restored, the FMC is not able to know where to go next, because it has no idea how long the power has been off.

44-On the ROUTE LEGS page when the scratchpad message SELECT ACTIVE WAYPOINT/LEG appears on the CDUs, you must enter the next waypoint and execute to return to the route.

COURSE END

45-End of course. ?