

STRENGTH IN UNITY

Airline Pilots Securing Their Future Through ALPA

ALPA Pilots Advance Safety Cycle

The ceaseless efforts of ALPA's staff and pilot representatives to maintain and improve aviation safety and security encompass nearly every aspect of airline flying—every geographic area, every airline, and a wide range

of technical issues. The Association's Air Safety and Security Structure—more than 600 pilot representatives supported by the professional and administrative staff of ALPA's Engineering and Air Safety Department—is

working on more than 200 specific, budgeted aviation safety and security projects, each having an assigned priority and expected date of completion.

But those efforts are rooted in, revolve around, and ultimately come back to the daily (and nightly) experiences of ALPA pilots flying the line.

ALPA Operations Bulletin 2005-10: Critical FMS Programming

Background: This Operations Bulletin supersedes ALPA Operations Bulletin 2005-06 and addresses the criticality of properly programming an RNAV SID in the FMS with the associated runway of departure.

RNAV SIDs are in use at several airports, including DFW, ATL, and LAS. During initial implementation of RNAV SIDs, the following was observed:

- improper programming of the correct runway into the FMS, and
- loss of standard separation between simultaneously departing aircraft, which jeopardized their safety.

Altitude and/or speed requirements on a specific RNAV SID may vary, based on the departure runway. Pilots must avoid losing required separation from other aircraft departing simultaneously on another runway and attempted intervention by ATC. When airports are conducting simultaneous RNAV departures (especially with parallel runways), the following items are critical:

- before takeoff, ensure that the proper runway, RNAV SID, and first named waypoint are programmed into the FMS, and
- after takeoff, closely monitor the aircraft track to verify that it is appropriate and not turning toward simultaneous departures from other runways. If the aircraft

deviates from the desired track, intervene immediately.

NOTE: To maximize the benefits of RNAV procedures, they might be refined on short notice as operational experience is gained. Therefore, pilots must be vigilant for changes in operating procedures each time they operate at an airport conducting RNAV SIDs.

Recommendations:

- Verify and review—While at the gate, both pilots must independently verify the runway and first named waypoint, and compare the complete RNAV SID programmed in the FMS with the chart.
- Modifications—If ATC assigns a different runway and/or RNAV SID from that programmed in the FMS, pilots must reprogram the FMS and brief the new/modified RNAV SID. Each pilot should independently verify the reprogrammed path, altitudes, and speed restrictions. A runway change should receive the same attention as a change in SID because, in many cases, a runway change to the RNAV SID of the same name results in many changes to the departure.
- Safety considerations—Verifying FMS modifications should be done when the aircraft is stationary and the parking brake is set.
- Pilots should be keenly aware of their current ground operations environment—e.g., runway incursion

hotspots, visibility, surface conditions, day vs. night operations, and airport complexity—while reprogramming the FMS.

- If stopping the aircraft to reprogram or verify the FMS data is necessary, pilots should coordinate their need to stop with ATC to minimize the effect on ATC.
- If ATC issues a last-minute runway change, it is highly recommended that you do not accept a takeoff clearance until the new departure has been briefed and both pilots have independently verified the reprogrammed FMS.

NOTE: In all cases, follow company guidance and procedures!

This bulletin applies to all SIDs retrieved from a database, conventional or RNAV. However, it is especially important for RNAV because correctly selecting the departure runway and SID is critical to safe operations.

For more information, please see RNAV Information at Crewroom. alpa.org/easc/DesktopDefault.aspx?tabindex=0&tabid=3560, which includes charts of certain specific RNAV SIDs.

Pilots who have questions or comments about this or any other aviation safety issue should contact the ALPA Engineering and Air Safety Department at 1-800-424-2470 or EAS@alpa.org.

Line Pilot Comments

Note: While the following comments from individual pilots are accurate for the aircraft, FMS, and/or airline operations with which they are intimately familiar, they may or may not be appropriate to other aircraft, FMS equipment, and/or specific airline operations. Pilots must always follow applicable regulations and guidance from their airline and the manufacturer of the equipment they fly.

B-757 Captain: “I liked your recommendations on FMS programming procedures in conjunction with RNAV departures. I would add one simple step that I adopted about three years ago because of the problems in LAS. The flying pilot should always verify and [say aloud] the runway he [or she] sees on the HSI display during the takeoff brief just before taking the active runway. This procedure ensures compliance with any changes to the Accuload or runway change during taxi out.”

B-747-400 First Officer: “Future air navigation will contain more aircraft in less airspace. Our margin for error continues to shrink. It must be safe, and this is a good start; however, one of the most im-

portant ingredients or checks is missing—I read nothing that addressed the checklist in the cover letter. Changes will always occur during taxi. The runway check MUST be included in the Before Takeoff Checklist, either as a standalone item, or tied into the FMS/radio check.”

Regional Airline Central Air Safety Chairman: “My experience on the Canadair Regional Jet (CRJ) indicates that...the heading bug must also be verified. On the CRJ, even though nav mode has been selected, the FMS first comes up in heading mode until the aircraft enters the captured zone. If the heading bug is set wrong at first, the flight director will command a turn toward the heading bug. I have witnessed this twice when I set the heading bug on the wingtip intentionally. (I was handflying the proper path.) [My airline] has issued a bulletin that includes such a warning.”

B-757 Check Airman: “This problem [with FMS departure runway programming] has manifested itself routinely over the years. The problem stems from a programming fault in the Honeywell FMS software. Once flight crews are aware of the software problem, FMS departure errors disappear. We need to publish the prob-

lem so that all pilots become aware. Also, we need to pressure Honeywell to fix their software.

“Here is the problem: When the active runway is changed on the FMS Takeoff page, rather than the FMS Route page, the FMS route (almost all of the time) is NOT updated. The old runway and its departure track are left in the FMS Route. Not good.

“Engaging LNAV results in a lateral move to attain the original runway track, resulting in the ‘loss of standard separation between simultaneously departing aircraft’ as described in the Bulletin. It is as simple as that.

“Flight crews should be instructed to *never enter a runway selection on the FMS Takeoff page*. Rather, they should select the active runway from the Departure/Arrivals page or enter it manually in the Route 1 page. Demonstrating this fault to a flight crew always results in an ‘ah-haa.’

“Finally, good situational awareness dictates selecting the lowest scale on the map when taking the runway and confirming the airplane is indeed positioned on a runway. Taking off in the dirt is a sure sign that the FMS is misprogrammed!”

Good example: ALPA alert bulletins and operations bulletins, which are distributed to ALPA members via several media—this magazine, the Association’s e-mail *FastRead*, and directly to every local and central air safety chairman and security coordinator at every ALPA pilot group.

ALPA Operations Bulletin 2005-10, issued September 6 and dealing with FMS programming for RNAV SIDs (see “ALPA Ops Bulletin,” opposite page), stimulated some thoughtful re-

sponses from ALPA members (see “Line Pilot Comments,” above).

Capt. Brian Townsend (America West), chairman of ALPA’s National Airspace (NAS) Modernization Team, says, “I’m pleased to see the dialogue that is taking place as a result of our RNAV SID bulletin. The fact that our members are taking the time to add their comments tells me that they are taking the material seriously. I’m also pleased with the FAA and [airline] feedback we’ve received to date.

“The feedback from our line pilot members can be very vital,” Capt. Townsend continues. “For example, I was not aware of the CRJ heading bug issue until members responded. I had a detailed conversation with [Capt.] Mitch Serber [(Comair), chairman of ALPA’s Airport Ground Environment Group] about this issue, and will make certain it is brought up to the [government/industry] RNAV Task Force and the FAA RNAV Program Office.”