

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N 8400.71

8/9/04

Cancellation
Date: 8/9/05

SUBJ: FLYING OF NON-RNAV/FMS SIDs AND STARs WITH RNAV/FMS NAVIGATION EQUIPMENT

1. PURPOSE. This notice provides guidance to all Title 14 of the Code of Federal Regulations parts 121 and 135 principal operations inspectors (POI) and operators conducting operations with area navigation (RNAV)/flight management system (FMS) navigation equipment.

2. DISTRIBUTION. This notice is distributed to the division level in the Flight Standards Service in Washington headquarters; to the branch level in the regional Flight Standards divisions; to the Flight Standards District Offices, and to the Regulatory Standards Division at the Mike Monroney Aeronautical Center. This notice is also distributed electronically to the division level in the Flight Standards Service in Washington headquarters and to all regional Flight Standards divisions and district offices. This information is also available on the Federal Aviation Administration's (FAA) Web site at:
<http://www.faa.gov/avr/afs/notices/8400/N8400-71.doc>.

3. BACKGROUND.

a. Latent Hazard. Many operators are using RNAV/FMS navigation equipment to fly non-RNAV/FMS Standard Instrument Departures (SID) and Standard Terminal Arrival Routes (STAR). In some cases, because of the software programming, this has led to inaccuracies in the required tracking of the procedures. These tracking inaccuracies have resulted in less-than-required air traffic control separation and air traffic control intervention to prevent a possible Controlled Flight Into Terrain (CFIT) accident. Non-RNAV/FMS procedures often require navigational tracking over all the specified fixes. Unless RNAV/FMS software is programmed to fly precisely over a given fix, it will compute, and commence, a turn prior to the fix so as to join the required track on the other side of the fix, with the minimal amount of track excursion on the outbound course. This turn anticipation could result in a turn being started miles prior to the expected turn point depending on the amount of required track change, wind, and true airspeed.

b. One Example. The WAGGE TWO DEPARTURE at Reno/Tahoe International Airport is an example of this type of procedure. History has shown that some RNAV/FMS software treat the WAGGE intersection as a FLY BY waypoint and not a FLY OVER waypoint. Because of the large course change at this fix, some aircraft have started the turn 5 miles prior to the intersection. A turn prior to WAGGE intersection may create a CFIT danger depending on the climb performance of the aircraft. This problem is not unique to the WAGGE TWO DEPARTURE but only an example of a more widespread problem.

4. ACTION.

a. POIs should provide this notice to the director of safety (part 121) or the director of operations (part 135), respectively, of their assigned certificate holders.

b. POIs should encourage their assigned air carriers to review their non-RNAV/FMS SIDs and STARs, applicable to their operations, to determine the capability of their RNAV/FMS systems and software to accurately track all affected SID and STAR procedures. The operators should check their navigational procedures to confirm that they contain adequate programming and navigational guidance for flightcrews to accurately track non-RNAV/FMS SID and STAR procedures using RNAV/FMS navigation systems. If they determine their navigational procedures to be inadequate, they should develop new navigational procedures or place operational restrictions on the use of the RNAV/FMS systems for non-RNAV/FMS instrument arrival and/or departure procedures.

c. The air carrier should inform their flightcrews of the potential tracking problems associated with non-RNAV/FMS SID and STAR procedures when using RNAV/FMS systems for navigation of these SIDs and STARs.

d. The operator should provide the applicable flightcrews with a means for programming and navigating these SIDs and STARs with the RNAV/FMS systems.

e. The operator should direct their flightcrews that the non-RNAV/FMS SID and STAR procedures must be flown as charted regardless of the guidance generated by the RNAV/FMS systems. The flightcrews should be instructed to take the appropriate actions necessary to navigate the aircraft over the required track and remain in protected airspace.

5. TRACKING. Document the conveyance of the information contained in this notice for each air carrier affected:

a. Use Program Tracking and Reporting Subsystem (PTRS) code 1030, Convey Non-Reg. Info.

b. Enter "N840071" in the "National Use" field (without the quotes).

c. Once the above information has been provided to the air carrier, close out the PTRS.

6. DISPOSITION. This notice will not be incorporated into Order 8400.10, Air Transportation Operations Inspector's Handbook. Questions concerning this notice should be directed to the Air Carrier Operations Branch, AFS-220, at (202) 493-4602.

/s/ John M. Allen (for)
James J. Ballough
Director, Flight Standards Service