AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
Meeting 04-01 – April 28-29, 2004
History Record

FAA Control # 04-01-253

Subject: LNAV/VNAV Landing Minimums

Background/Discussion: For U.S. FAA SIAPs, LNAV/VNAV landing minimums are sometimes equal to or greater than the corresponding LNAV-Only portion of an approach. This seems illogical and makes no operational sense because there is no perceived advantage for utilizing VNAV - as far as landing minimums are concerned. Also, on some approach charts, the LNAV/VNAV minimums column is labeled "NA" or left blank when VNAV minimums are not be established or available. The chart reflects the information on the 8260 procedure source document. When the column is left 'blank' or listed as 'NA', this incorrectly implies that VNAV is not authorized at all.

LNAV/VNAV landing minimums should be adjusted to offer incentive rather than inhibit or penalize improved navigation capabilities available with VNAV. In addition, minimums columns on 8260 procedure sources that list LNAV/VNAV 'NA' or are left 'blank' should be modified to avoid misinterpretation. The use of VNAV should be encouraged, not inhibited, even when LNAV/VNAV minima are not provided.

The current situation is contrary to the expectation that operational advantages would be realized from the utilization of constant angle descents using VNAV.

Recommendations: The ATA FMS/RNAV Task Force and the ATA Chart & Data Display Committee both recommend the FAA review its criteria for determining landing minimums for LNAV/VNAV operations. The FAA should 1) implement harmonized AWO minima, or 2) address the need for entirely new VNAV minima or, 3) where applicable, at least duplicate the same minima values in both the LNAV-Only and LNAV/VNAV columns of the 8260 to, in essence, remove any 'blanks' or 'NA placeholders' on the 8260 procedure source (and charts).

Comments: The subject was originally presented to the ATA FMS/RNAV Task Force by the Boeing Company. The Task Force's Chart & Database Compatibility Subcommittee reviewed the proposal, and coordinated with the ATA's Chart & Data Display Committee. The recommendation was endorsed by both the FMS/RNAV TF and the CDDC, to be carried forward for presentation to the FAA for consideration.

Submitted by: Ted Thompson - on behalf of the Air Transport Association's FMS/RNAV Task Force and Chart & Data Display Committees
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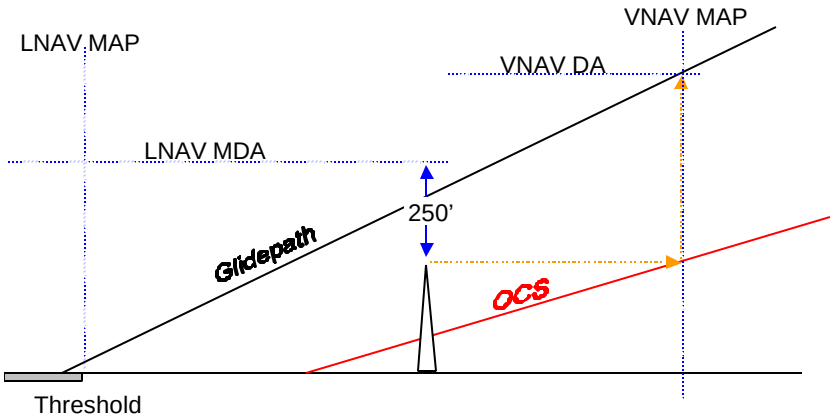
Date: April 7, 2004

Initial Discussion – Meeting 04-01: Ted Thompson, Jeppesen, presented this issue on behalf of the Air Transport Association (ATA) FMS/RNAV Task Force and Chart & Data Display Committee (CDDC). ATA is concerned that LNAV/VNAV landing minimums are sometimes equal to or greater than the corresponding LNAV-only minimums on an approach. This seems illogical and makes no operational sense because there is no perceived advantage for utilizing VNAV as far as landing minimums are concerned. Also, on some approach charts, the LNAV/VNAV minimums column is labeled "NA" or left blank when VNAV minimums are not be established or available. The chart reflects the information on the 8260 procedure source document. When the column is left 'blank' or listed as 'NA', this incorrectly implies that VNAV is not authorized at all. Vince Massimini, MITRE, stated that LPV was developed to preclude this scenario. Tom Schneider, AFS-420, agreed to research guidance in Order 8260.19 and report. ACTION: AFS-420.

MEETING 04-02: Tom Schneider, AFS-420 briefed the following report from Jack Corman, AFS-420:

Recognizing the CFIT accident rate is 7 times greater for nonprecision (2-D) approach procedures than for vertically guided (3-D) approach procedures, the FAA and industry agreed to promote flying 3-D procedures by providing LNAV/VNAV approach procedures to all 14 CFR Part 139 runways. A 3-D approach procedure enhances safety by placing the aircraft in a position and on a trajectory for landing at DA (MAP) while a 2-D procedure allows the aircraft to proceed at MDA to the runway threshold (MAP) in a more difficult position to complete a landing. The provision of 3-D procedures is an effort to lower the accident rate, not necessarily to achieve lower minimums.

It is very possible for the visibility minimums or DA value of a 3-D approach to be greater than a 2-D approach. 2-D approaches require an MDA value that is 250' (ROC value) above the highest obstacle. Additionally, the 2-D approach procedure MAP is usually at the runway threshold; therefore, the distance from MAP to threshold is zero. On a 3-D approach procedure, the DA (MAP) occurs at a point on the glidepath, which is a distance from the threshold determined by where it occurs on the glide path. The no-light visibility value (based on MAP to threshold distance) of a given 3-D approach may be greater than the 2-D procedure.



At locations where the GQS is penetrated or precipitous terrain is identified, 3-D approach procedures are not allowed. Where remote altimeter is used, BaroVNAV (LNAV/VNAV) lines of minima will be N/A.

The conclusion is that this is a long-standing TERPS visibility consideration of MAP-to-threshold distance. This consideration creates a contrast between 2-D and 3-D approach procedures. As the acceptance and adoption of 3-D procedures progresses-the perception of this phenomenon as a problem should change.

Ted Thompson, Jeppesen, briefed that his organization had resolved the "N/A" problem unique to their charts. In addition, he stated his organization (Jeppesen) would take the above report back to ATA. Item Closed.
