AERONAUTICAL CHARTING FORUM
Charting Group
Meeting 12-01 – April 25-26, 2012

RECOMMENDATION DOCUMENT

FAA Control # 12-01-252

Subject: Warning note on procedures with a published Vertical Descent Angle (VDA) when there is a penetration of the 34:1 OIS**.**

Background/Discussion:

FAA policy is to publish VDAs on all nonprecision approaches. Some of these approaches have obstacles that penetrate the 34:1 surface. AIM paragraph 5-4-5i makes it clear that the VDA is for information only, is strictly advisory in nature, and there is no implicit additional obstacle protection below the MDA. However, Flight Inspection Services believes additional warning is needed on the approach graphic to alert pilots of the situation. Currently, the only specific indication on the approach chart that the 34:1 surface is not clear in the visual segment below the MDA is the absence of shading in the visual segment on the profile view; however, this depiction is only used on RNAV procedures.

A recent user complaint by Southwest Airlines brought this issue to the attention of Flight Inspection Services. They complained of unexpected GPWS alerts on the RNAV RWY 36 at Birmingham, AL (KBHM). A flight inspection aircraft (Challenger) investigated by flying multiple approaches and determined that GPWS warnings are received (you cross only 200' over a house on 2 mile final) if the published 3.0° VDA is flown. GPWS warnings could be avoided if a dive and drive to the MDA profile is flown, followed by a visual descent, or by intercepting a higher 3.4° glidepath from the FAF altitude.

Ironically, VDAs were added to procedures to reduce the cases of controlled flight into terrain (CFIT) by providing a means for stabilized descents. However, blind application of VDAs has resulted in misleading information that makes it look like once the aircraft is established on the published VDA it has a clear path to the runway. This is especially compelling with the increased use of RNAV avionics and glidepath guidance (albeit advisory in nature) provided for the pilot on the primary flight display**.**

Recommendations:

Add a warning to the approach chart that calls the pilot's attention to the fact that there are obstructions penetrating the 34:1 surface in the visual segment and that the published VDA may not clear those obstacles below the MDA. Possibly something like, "No obstacle clearance below MDA on VDA**.**

Comments:

This recommendation affects FAA Order 8260.19 and IACC charting specifications.

Submitted by: William Geiser
Organization: Flight Inspection Services, Technical Services (AJW-331)
Phone: (405) 954-1776
E-mail: william.r.geiser@faa.gov
Date: April 4, 2012

MEETING 12-01: The issue was briefed at IPG on Tuesday, April 24, 2012.

The new issue was submitted by Mr. John Collins, GA Pilot, and is closely related to ACF-IPG Issue 12-01-301, *Publishing a Vertical Descent Angle (VDA) with 34:1 Surface Penetrations in the Visual Segment*, which was submitted by FAA Flight Inspection Services, FAA/AJW-331, as a result of a Southwest Airlines complaint of receiving GPWS alerts while flying a published vertical descent angle (VDA) on approach to Birmingham, AL.

Mr. Collins' submission also expressed concern when VDAs and VDPs are published when 34:1 and 20:1 visual surface penetrations exist and requests a cautionary note on the approach chart when this condition exists.

Mr. Collins stated that even though VDAs are for information only, advisory in nature, and are not protected for use below the MDA, many pilots are increasingly rely on the VDA as guidance to the runway. Mr. Collins provided an example location where it is impossible to fly a stabilized approach to the runway because there is terrain penetrating the VDA.

Mr. Collins closed by emphasizing that a cautionary note when there are 34:1 and 20:1 penetrations of the VDA would be a great added safety measure.

Ms. Valerie Watson, FAA/AJV-3B, noted that FAA-produced RNAV charts, the stipple symbols used when the 34:1 slope is clear. Lack of the symbol on FAA charts indicates that the 34:1 slope is not clear. She also noted that notes on the IAPs are based on FAA Order 8260.19 and the cautionary note would have to be assessed by Flight Standards.

STATUS: OPEN

ACTION: Mr. Thomas Schneider, FAA/AFS-420, agreed to staff the issue through AFS-400 and report at the next meeting.

MEETING 12-02:

(See associated item from the ACF-IPG RD 12-01-301, where the procedural solutions are discussed and the presentation by Bill Geiser, AJW-334, is included.)

Bill Geiser, FAA/AJV-334, gave a PowerPoint presentation, highlighting the risks associated with flying the published VDA on the Birmingham, AL RNAV (GPS) RWY 36 approach where a house on a ridge top penetrates the 34:1 visual slope.

Valerie Watson, FAA/AJV-3B, led the discussion to one in which solutions from a charting perspective were addressed, focusing on ways to guard against pilots using the VDA below the MDA. It was discussed that even though the VDA does not offer obstacle protection below the DA/MDA, pilots commonly assume it does.

Lev Prichard, APA-American Airlines, voiced that the "stipple" symbol on FAA RNAV approach charts, indicating a clear 34:1 slope, is far too subtle and that pilots don't understand what it (or its absence) means. (During this discussion, it was also voiced that the stipple symbology should also be applied to non-RNAV approach charts.)

Valerie stated that in her opinion, misuse of the VDA beyond the MDA is a pilot education issue. She suggested adding the text "to MDA" after the charted VDA angle in the profile to

clarify its use. Alternately, she suggested a profile note stating “VDA NA BLO DA/MDA” be added to all procedures with a published VDA.

A general discussion followed, with several members of the audience voicing that it would be counter-productive to delete the VDAs on all approaches where the 34:1 is not clear (there are approximately 3300), thus taking away the pilot’s ability to fly a constant or stabilized descent and bringing back a return of the “dive and drive” method of descent. It was also pointed out that, even if the VDAs are removed from the 8260 source documents, many onboard systems will generate an angle based on the data, meaning a VDA will be in the FMS anyway and there is the danger that pilots will misuse it.

Gary McMullin, Southwest, asked if there was a possibility of revising the procedure at Birmingham, AL with a waiver to allow a steeper descent angle?

Brad Rush, FAA/AJV-3B, pointed out the danger of revising a procedure for steep angle decent, focusing on how such a change could restrict or eliminate various categories of aircraft. It was agreed that at times this solution may be viable, but it could not be applied to all cases.

Bill’s recommendation, that when Flight Inspection deems prudent, the VDA will not be published (on the source document and thus on the chart – databasing remains unresolved), received general acceptance.

STATUS: CLOSED

EDITOR’S NOTE: Associated item from the Instrument Procedures Group (IPG) will remain Open – Ref: ACF – IPG Agenda Item *12-01-301 Publishing a Vertical Descent Angle (VDA) with 34:1 Surface Penetrations in the Visual Segment*.