

GOVERNMENT/INDUSTRY AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
(Transcribed/Re-Formatted)
HISTORY RECORD

FAA Control # 94-02-133

SUBJECT: SIAP Optimum Final Approach Segment Descent Gradient for Categories C and D Aircraft

BACKGROUND/DISCUSSION: Turbojet aircraft need a non-precision segment descent gradient which is neither too steep nor too shallow. Until recently, ALPA was of the impression that the optimum descent gradient for all non-precision FASs was 300 feet per mile. We have recently learned that this is true for radar, RNAV and GPS SIAPs, but not for VOR, LOC, or NDB SIAPs. It appears that this is an editorial inconsistency in TERPS, 8260.3B, but at least one VOR SIAP has been located which has a final segment descent gradient of well less than 300 feet per nautical mile, so the FAA's field personnel have obviously taken the permissive meaning of the criteria contained in the VOR final segment criteria of TERPS.

RECOMMENDATION: TERPS, 8260.3B have all final segment descent gradient criteria paragraphs revised to read that the optimum descent gradient in the final approach segment shall be 300 feet per mile.

COMMENT: This recommendation affects 8260.3B and 8260.19C.

Submitted by: Captain Tom Young, Chairman
Charting and Instrument Procedures Committee
AIR LINE PILOTS ASSOCIATION

INITIAL DISCUSSION (MEETING 94-02): Mr. Tom Young, ALPA stated the problem was TERPS is written to say that 300 feet per mile is the optimum descent gradient in the approach segment. This has allowed the FAA to publish procedures with a descent gradient of less than 300 ft./mile. These shallow gradient approaches are causing the Ground Proximity Warning systems to activate during the approach. Mr. Paul Best, AFS-420 speculated there are not that many approaches with a shallow gradient but will check the numbers. Mr. Dave Eckles, FAA/AVN-220, argued that TERPS is written as it is to provide the design specialists with some degree of flexibility. Mr. Best added he and Mr. Eckles would check on the extent of the problem and report back to the group at the next ACF. **Action:** Item Open (AFS-420 and AVN-220)

MEETING 95-01: Tom Young, ALPA did not elaborate on this issue, but did say that Pullman, WA Airport was of interest to Horizon Air. ALPA will address the issue with Horizon Air. **Action:** Item Open (ALPA)

MEETING 95-02: Tom Young, ALPA, did not have the opportunity to meet with Horizon Air to gain further background on this issue. ALPA will address this item with Horizon Air, and report at next meeting. **Action: Item Open (ALPA)**

MEETING 96-01: Tom Young, ALPA led the discussion expressing their concern over IAPs with very shallow descent gradients. (Pullman, WA was offered as an example.) They would like 300 Ft/NM be established as a hard standard and IAPs with lesser gradients require waiver. The FAA does not support this hard line, waiver required approach. Al Prest, ATA advised that they were working similar issues and would look at this also. ATA will address this item and report at next meeting. **Action: Item Open (ATA)**

MEETING 96-02: Bill Thomas, ATA, led the discussion with a report from ATA's Chart and Display Working Group. There had been rumors circulating that this group was advocating using VNAV to convert non-precision IAPs to precision approaches, which are false. ATA is advocating using VNAV as a tool to provide constant angle descent non-precision approaches. After the AA accident at Windsor Locks, CT it was noted that domestic U.S. carriers fly relatively few non-precision IAPs per year, therefore, proficiency is at a low level. Simulator tests indicate that flying non-precision IAPs with a published descent angle and with VNAV guidance is a tremendous asset. Jim Terpstra, Jeppesen, presented a comprehensive briefing on VNAV path construction, descent angle computation and charting options. There was further discussion over the possibility of using a MDA as a DA(H) and making the point at which the pilot reaches the MDA the missed approach point (MAP) for non-precision approaches. Jim Enias, AFS-410, favors this philosophy provided there is an underlying ILS, VDP, or VASI indicating a visual segment obstruction analysis has been conducted. Wally Roberts, ALPA, stated that allowing descent below the MDA without the proper visual cues is a violation of the Code of Federal Regulations. Additionally, if the DA (H) point is to be used as the MAP, visibility minimums will have to be assessed and in most cases increased significantly. Pat Gallagher, APA/AA, commented that the increase in the visibility is worth the added safety. Wally also noted that having a published ILS approach does not necessarily guarantee a clean visibility surface when the DH has been adjusted for obstacles. Lyle Wink, AFS-440 stated that the criteria for visual surface obstacle evaluation is being finalized and should be available for circulation within 2-3 months. ATA will address this item at next meeting. **Action: Item Open (ATA)**

MEETING 97-01: The ATA representative working this issue resigned, therefore, a status briefing from the ATA Chart and Display Working Group was not available. Jim Nixon, AFS-440 briefed that TERPS change 17 contains improved criteria for a visual segment obstacle analysis. General consensus among those that have reviewed the draft criteria is that it is good and it will close the issue when published. The change should be out for formal coordination within the next month. Jim Terpstra, Jeppesen presented updated Jeppesen charts depicting various VNAV charting proposals. Bill Hammett, AFS-420 questioned if the VNAV angles greater than VASI/PAPI angles, as indicated on the charts, could cause cockpit confusion. If flown as depicted, aircrews will break out of weather with higher visual indications. Additionally, the

VNAV path will place the aircrew at MDA after the VDP if one is charted. While not a critical issue, it deserves consideration. Also see ACF issue 96-02-170. AFS-440 will continue to process TERPS change 17 for publication. **Action: Item Open (AFS-440).**

MEETING 97-02: Jack Corman, AFS-440 reported that TERPS Change 17 coordination nearly completed, and expect coordination for final publication after the first of the year. There followed a discussion over a possible editorial inconsistency in TERPS. Until recently the optimum descent gradient for all non-precision final approach segments was considered 300ft/NM. It has been determined that this is true for Radar, RNAV and GPS SIAPs, but not true for VOR, LOC, or NDB SIAPs. At least one VOR SIAP has been located with a less than 300 ft. /NM final segment. Change 17 to TERPS revised the descent angle/gradient guidance to 3dg/318 ft. /NM. This issue is under review. General consensus among those that have reviewed the draft criteria is that it is good and will close this issue when published. The change should be out for formal coordination within the next month. AFS-440 will continue efforts to publish TERPS Change 17. Jeppesen will provide AVN with a listing of non-standard procedures, and copy to AFS-400, Paul Best. **Action: Item Open (AFS-440).**

MEETING 98-01: Jack Corman, AFS-420 briefed that implementation of Change 17 to TERPS which revised descent angle/gradient guidance to read 3°/318 Ft/NM was implemented on April 20th. Jim Terpstra, Jeppesen has forwarded a list of shallow descent gradient IAP's to Paul Best, AFS-400. The group agreed that this issue is closed. **Status: Item Closed.**