

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

FAA Control # 98-01-204

SUBJECT: Climb Gradients on Public Missed Approach Procedures.

BACKGROUND/DISCUSSION: Historically, both the FAA and other ICAO member states have not permitted obstacles to penetrate a 40:1 missed approach surface. The rationale is that, unlike departure procedures, which can be accepted or rejected on the ground, missed approach procedures are often flown under difficult circumstances and often under circumstances where the pilot is not familiar with the procedure and/or the geographical layout in the missed approach area.

Further, unlike departure procedures, missed approach procedures occasionally have to be flown with an inoperative engine on a preplanned basis. Flight with a failed engine during a missed approach procedure is a far more likely event than failure of an engine during departure, simply because the missed approach occurs at the end of a planned flight segment, during the entire time of which an engine may fail.

Transport category aircraft which are loaded at, or near, maximum takeoff weight and that experience an engine loss on departure can often make good an overall climb gradient of less than 60:1. But, at or below maximum landing weight, such aircraft with a failed engine can usually make good at least a 40:1 climb gradient slope. Thus, the historical reasoning for conservative surfaces in missed approach procedures.

Many "mountain bowl" airports have their approach minimums limited by the missed approach surface. If, instead, minimums were predicated strictly on the obstacle environment of the initial, intermediate, and final approach segments, lower minimums (sometimes substantially lower) could be achieved by increasing the steepness of the missed approach surface.

The FAA's historical position has been to honor the ICAO conservative 40:1 missed approach surface. Recently, though, the FAA has proposed to steepen the missed approach surface in procedures designed for FMS equipped aircraft. Of course, equipage with FMS does not make an airplane climb any better, so this FAA proposal is really nothing more than a "trial balloon" to abandon the conservative 40:1 missed approach concept for some additional operational flexibility. In ALPA's view this is trading safety for some operational gain.

At present, ALPA is engaged in an on-going struggle with the FAA to require air carriers to provide flight crews with all-engines-operating performance calculations for instrument departure procedures (SIDs) that have specified climb gradient requirements. Having thus far been unsuccessful with that effort, ALPA doubts the FAA is now prepared to require carriers to provide flight crews with either all-engines-operating or engine-failure performance "go/no-go" data for specific climb-gradient missed approach procedures.

RECOMMENDATION: The FAA abandons its efforts to steepen missed approach procedures on public SIAPs. Further, climb gradients on special IPSs be limited to an accompanying operations specifications limitation which clearly requires that the aircraft be able to make good the missed approach climb gradient with an inoperative engine, and that this be a specific performance calculation upon dispatch of a flight segment, considering weight and density altitude conditions expected to exist at the time a missed approach would be made.

Further, in the interests of JAR harmonization, the FAA should abandon its ill-conceived effort to circumvent the international 40:1 standard for missed approach procedures.

COMMENT: This proposal affects TERPS, 8260.3B, various FMS criteria documents, and standard operations specifications.

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INITIAL DISCUSSION (MEETING 98-01): Tom Young, ALPA is concerned that proposed changes in missed approach criteria do not take fully into consideration aircraft engine out performance characteristics. In addition, ALPA believes the FAA should require air carriers to provide flight crews with all-engines-operating performance calculations for instrument departure procedures that have specified climb gradient requirements. AFS-200 comments (after reviewing ALPA's documentation) in part agree with this position. AFS-200 is developing a handbook bulletin to address this issue. AFS-200 will provide status update on the bulletin at the next meeting. **Action:** Item Open (AFS-200).

MEETING 98-02: Howard Swaney, AFS-420, briefed that coordination with AFS-200 indicates the handbook bulletin addressing this issue is still in work. As there was no AFS-200 representative available at the meeting, the status is unknown. AFS-420 will attempt to ensure AFS-200 participation in the next meeting. AFS-200 will update status at the next meeting. **Action:** Item Open (AFS-200).

MEETING 99-01: Jim Garner, AFS-200 was not up to speed on the problem; therefore, Wally Roberts, ALPA represented the issue. Jim advised this issue will be worked in conjunction with 98-01-197. He also noted the AFS-800 must also be involved. Don Pate, AFS-420 advised that several considerations are being worked in the revised departure/missed approach criteria. Bill Hammett, AFS-420 suggested that publication of dual minimums (with and without climb gradient) might be a possible solution. AFS-420 will take the lead to work with all concerned to resolve the issue and report at next meeting. **Action:** Item Open (AFS-420)

MEETING 99-02: Dave Eckles, AFS-420, presented a status update paper prepared by Norm LeFevre, AFS-420. The concept of allowing increased use of climb gradients on missed approach procedures has only been circulated within the FAA and not fully developed to date. ALPA's concerns on this issue are duly noted; however, it is premature to debate this issue when no formal proposal is on the table. If and when the FAA proposes new criteria, it will be promulgated as a TERPS change, and all agencies will be provided an opportunity to comment. He recommended the issue be closed, and the group concurred. **Status: Item Closed**