

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

FAA Control # 92-02-103

SUBJECT: Minimum Crossing Altitude (MCA) on Obstacle Clearance SIDs.

BACKGROUND/DISCUSSION: There are presently standard Instrument departure (SID) procedures which have climb gradients that are established for Air traffic purposes but which also have an implicit underlying obstacle climb gradient that is not specified on the procedure. Some of these procedures, although titled "Pilot Nav" are subject to intermediate level offs by ATC below the ultimate minimum instrument altitude for the procedure. The pilot then loses all meaningful information pertaining to subsequent climb performance that will be required to clear significant controlling terrain/obstacles. A case in point is the GABRE SID at LAX. ATC often: levels aircraft at 3,000, 4,000 and 5,000; re-clears the aircraft to climb; deletes the GABRE crossing restriction; then terminates radar vectors followed immediately by communications transfer. The pilot has no idea that terrain and antennas 6,100 ft. are ahead, followed by terrain of 9,299 ft. further ahead but still within the SID protected airspace.

RECOMMENDATION: Pending the implementation of the recommendations in the related recommendation document 92-02-102, MCAs should be established on all pilot navigation or hybrid radar-pilot navigation SIDs where such procedures are not 40:1 clear of terrain or obstacles. The GABRE SID at LAX was used as an example.

COMMENT: This recommendation affects the United States Standard for Terminal Instrument Procedures (TERPS), FAA Handbook 8260.3B, FAA handbook 8260.19B, and Air Traffic Service Orders pertaining to standard instrument procedures.

Submitted by: Charles K. Guy
May 13, 1992
AIR LINE PILOTS ASSOCIATION

INITIAL DISCUSSION (MEETING 92-02): ALPA presented this topic, stating that there are SIDs which have climb gradients that are for air traffic use only. These SIDs also have underlying obstacle climb gradients that are not specified on the procedure. Some of these procedures are "Pilot NAV" SIDs and are subject to air traffic level offs that are below the minimum instrument altitude assigned to the procedure. When ATC assigns an altitude below that established for the procedure, the pilot has no idea of the climb gradient required to clear the underlying terrain or obstacles. The GABRE SID off LAX was used to illustrate. ALPA contends MCSs should be established for all pilot navigation or radar-pilot navigation SIDs where the 40:1 terrain/obstacle clearance criteria have not been applied. Perhaps a note applied to the SID providing MCA clearance would be appropriate. ALPA believes, as was stated in 92-02-102, that SIDs and STARs should be the responsibility of AFS and not AT. **Action: Item Open (Office of Aviation Safety)**

MEETING 93-01: Unavailable

MEETING 94-01: (From Frank Parr, AVN-210 notes) the problem of a SID in one direction with an engine out procedure going in another is causing chagrin among pilots and ATC. This problem will be addressed by a SID/STAR working group (to be formed) for report and recommendations at the next meeting. **Action:** Item Open

MEETING 94-02: Tom Quinlan, ASA-108 reported that the SID Order had been updated in part, but there was a requirement for a minimum crossing flag for SIDs. Dan Hanlon, ATP-126 volunteered to check on the requirement with ATP-130, and if necessary, establish the requirement in the SID Order. Dick Powell, ATP-220 could then place a flag on the appropriate charts. **Action:** Item Open.

MEETING 95-01: ALPA expressed concern over the way aircraft are handled on Pilot Navigation and Radar Navigation SIDs. When vectored off the Pilot Navigation SID can ATC guarantee the pilot can meet the 40:1 climb gradient and any crossing restrictions? ALPA stated that restrictions should be annotated so the pilot will know that obstacle clearance can be met during the climb. Also ALPA is looking for guidance on obstacle clearance once Air traffic clears a pilot off a 40:1 obstacle clearance SID.

The SID order has been updated in part but there was still a requirement for a minimum crossing altitude flag for SIDs. Mr. Dan Hanlon was to check with ATP-130 and, if necessary, establish the requirement for the SID Order. Mr. Dick Powell could then place the flag on the appropriate charts.

Mr. Tom Young will write a letter to ATP-130 requesting a flag be annotated on minimum crossing altitudes on SIDs and request if ATC vectors a pilot on a SID to clear the aircraft to a specific fix. **Action:** Item Open (ALPA/Tom Young)

MEETING 95-02: At a previous meeting, Tom Young, ALPA took an IOU to write ATP-130 a letter requesting that obstacle clearance altitude restrictions be annotated on SID charts to provide pilots full situational awareness. Additionally, if ATC vectors an aircraft off of a charted SID, the pilot will be cleared to a specified fix when released for non-radar navigation. The letter was sent; however there has been no response from ATP-130. Dick Powell agreed to coordinate with ATP-130 to ascertain status and remind them they owe a response. **Action:** Item Open. ATP-220)

MEETING 96-01: This issue was originally submitted by ALPA and recommended that obstacle clearance requirements be published on SIDs. This is necessary to ensure pilot situational awareness when air traffic vectors aircraft off a SID route or deletes published ATC altitude

restrictions. It was suggested that the aforementioned ad hoc group could also address this issue. L'Tayna Talley, ATO-110 stated that air traffic had proposed a change to Order 7100.8 (SIDs), which is out for comments. **Action: Item Open (ATO-110)**

MEETING 96-02: There is still no consensus on this issue. C.R. Bramble, ATO-120 emphasized that when ATC vectors an aircraft off of a SID, then ATC is responsible for terrain separation. He also stated that ATC continues this responsibility in a radar environment when vectors are terminated. He requested that ALPA show him where the problem specifically exists. Wally Roberts, ALPA stated that it is ALPA's position that any time there is a climb gradient on a SID, then they want a MOCA specified on the chart. They also want more terrain data available so the pilots have better situational awareness whenever vectored off/returned to assigned routes. Tom Young, ALPA offered to research the NASA ASRS data base for ground proximity warnings related to IFR departures and report at the next meeting. **Action: Item Open (ATO-110).**

MEETING 97-01: Tom Young, ALPA researched the NASA ASRS data base and discovered there were 16 filings on departures, 5 of which related to the subject. Discussion indicates that there is still no consensus on this issue. ATC says "trust us to provide obstruction clearance"; pilots say "we do, but would like obstruction information on the charts". Bill Hammett, AFS-420 noted that the SID legend in the IAP booklets denote that an asterisk (*) may be used to denote a MOCA. Additionally, military SIDs use different icons to denote differences between ATC and minimum climb rates. As noted in Issue 92-02-102, Charlie Guy, ASAP emphasized that this issue should be addressed in the proposed 8260.PID Order. Pat Fair, ATA-130 and Bill Mosley, AT0-120 took an IOU to check IACC specifications and report at the next meeting. ATA-130 and AT0-120 will research the IACC specifications to determine charting applicability for MOCAs on SIDs. **Action: Item Open (ATA-130 and AT0-120).**

MEETING 97-02: Status remains unchanged and no significant action taken since 97-1 report. Tom Young (ALPA) researched the NASA ASRS data base and discovered there were 16 filings on departures, 5 of which related to the subject. Discussion indicates that there is still no consensus on this issue. As noted in Issue 92-02-102, Charlie Guy (ASAP) emphasized that this issue should be addressed in the proposed 8260.PID Order. Pat Fair (ATA-130) and Bill Mosley (AT0-120) took an IOU to check IACC specifications and report at the next meeting. ATA-130 and AT0-120 will research the IACC specifications to determine charting applicability for MOCAs on SIDs. **Action: Item Open (ATA-130 and AT0-120).**

MEETING 98-01: Status remains unchanged with no significant action taken since 97-2 report. ALPA, with support from a number of other users, is very much concerned about a possible lack of obstacle protection for aircraft having been cleared on a published SID, issued an ATC off route vector, and then re-cleared onto the published SID. In instances where the SID specifies a specific climb gradient, are controllers aware and able to determine the aircraft's ability to comply with all altitude restrictions (climb gradient) at the

point of re-joining the SID? The AFS intent is to publish both ATC and obstruction clearance restrictions. Eric Secretan, NOAA indicated that charting would not be a problem. Tom Young, ALPA researched the NASA ASRS data base and discovered 16 filings on departures, 5 of which related to the subject, and is concerned there may be more. Jim Terpstra, Jeppesen is concerned that the FMS limitations may not allow a vector off the procedure and then back on. Discussion indicates that there is still no consensus on this issue. Howard Swaney, AFS-420 and L'Tanya Talley, AT0-110 are to jointly develop a brief on the issue and present at the next meeting. Mike Warner, AVN-160 took an IOU, working with ALPA, to look at specific locations to determine where immediate actions would be required. (1) ATA-130 and AT0-120 will research the IACC specifications to determine charting applicability for MOCAs on SIDs. (2) AFS 420 and AT0 110 prepare a briefing on controller responsibilities for the next forum. **Action: Item Open (ATA-130, AFS-420 and AT0-120).**

MEETING 98-02: Bill Mosley, AT0-120 discussed ALPA's concerns over ATC vectors off an assigned DP, then clearance to rejoin the procedure, when there are obstacle considerations unknown to the pilot. It is Air Traffic's position that controller procedures are adequate for this scenario. Tom Young, ALPA stated that he believes that depiction of a MOCA or MCA for obstacle clearance on DP's will provide sufficient pilot awareness. Eric Secretan, NOAA briefed that publishing this altitude should not present a problem with charting specs. The group consensus was that this issue be resolved in the revision to Order 8260.46 and that AFS-420 will get input from AT0-120, AVN-100, AFFSA, NOAA and ATA-100 early during the revision. AFS-420 will address the issue during revision of Order 8260.46. **Action: Item Open (AFS-420).**

MEETING 99-01: No change in status. This issue will be worked during the rewrite process for Order 8260.46. Pat Fair, ATA-130 noted that there is a meeting of key players in the .46 rewrite process scheduled for June, 1999. Eric Secretan, NOAA again emphasized that there should be no problem in publishing dual climb gradients (ATC and obstruction clearance) and MOCAs on departures if necessary. The issue will be addressed during the rewrite. AFS-420 will report progress. **Action: Item Open (AFS-420)**

MEETING 99-02 Dave Eckles, AFS-420, briefed that the issue has been addressed in Change 2 of Order 8260.19, which has been finalized and forwarded for AFS-1 signature. The change provides policy for charting dual (obstacle and ATC) altitudes climb gradients. Identical policy will also be incorporated into Order 8260.46. Wally Roberts, ALPA raised concern over the proposal to combine ATC and obstacle altitudes when they are within 500'. The group consensus was to always publish the obstruction altitude, regardless of difference. There was some further discussion over the chart depiction of the obstacle altitude. Bill Hammett, AFS-420 (ISI) recommended it be charted identically to MOCA charting on en route charts. Consensus was to chart per IACC specifications; if this presents problems, the issue would be referred to the ACF Charting Group. AFS-420 will continue working the issue and report at the next meeting. **Action: Item Open (AFS-420)**

MEETING 00-01: Dave Eckles, AFS-420, briefed that the issue has been addressed in Change 2 of Order 8260.19, which has been signed and forwarded for printing. The change was amended to adopt the consensus of the last ACF Subgroup meeting to always chart an obstacle minimum altitude regardless of the ATC altitude. Identical policy will also be incorporated into Order 8260.46A that is currently in formal coordination. AVN-100 has advised that they will require a 45-day training period prior to implementation of Change 2, therefore an effective date of May 15th has been established. Dave suggested the issue be closed and the group concurred. **Status: Item Closed**