

[DOT/FAA letterhead]

[Dated Nov. 21, 1996]

Dear Forum Participant:

Attached are the minutes of the Aeronautical Charting Forum (ACF), Instrument procedures Subgroup, 96-02, held at ALPA Headquarters, Washington, DC, on October 7-8, 1996. Briefing papers are not included as they were distributed at the meeting. The OPI for each open agenda item is reflected in parentheses after the item.

Please review the minutes for accuracy and forward any comments to:

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We believe that participant preparation for this past meeting was a key element to allow coverage of all the agenda items with additional time for discussion on other items of interest to the group. In an effort to continue this trend, a synopsis of open agenda items is attached to the minutes. All OPIs are encouraged to review the list in preparation for the next meeting.

The next meeting will be held during the week of April 14, 1997 at NOAA. Further details will be forwarded later.

/Signed/

Paul Best
Co-chairman, Aeronautical
Charting Forum

Attachments

**GOVERNMENT/INDUSTRY AERONAUTICAL CHARTING FORUM
INSTRUMENT PROCEDURES SUBGROUP
MEETING 96-2 WASHINGTON, DC
OCTOBER 7-8, 1996**

1. Opening Remarks:

Mr. Dick Powell (ATA-100), Co-chair of the Aeronautical Charting Forum (ACF), Instrument Procedures Subgroup, opened the meeting at 1:00 PM on October 7, 1996. Mr. Lyle Wink (AFS-440) served as Co-chair for Paul Best (AFS-420), who was unable to attend. The meeting was held at the Air Line Pilots Association (ALPA) Headquarters and welcoming comments were made by Capt. Tom Young (ALPA). A listing of attendees is attached.

2. Review of Minutes of Last Meeting:

Minutes of the last meeting, which was held on April 29-30, 1996, were mailed on May 14. Two comments were received and the minutes revised accordingly (*see underlined italic text*). The corrected minutes were accepted.

3. Old Business:

a. **92-02-102:** IFR Departure Procedures and Standard Instrument Departures. Basic IFR Departures Should Follow the Least Onerous Obstacle Route (95-01-142).

(1) At the last meeting, it was agreed that AFS-440 would lead an ad-hoc group, made up of representatives of ATO-110/120, AFS-420/440, AVN-100 and ALPA, to resolve SID development issues. Jack Corman (AFS-440) circulated various proposals through E-Mail. The consensus is that AVN-100 procedure specialists will take over SID development in consonance with Air Traffic design input. This should ensure that both the least onerous route is assessed by AVN and the final design conforms with desired air traffic routings. Adoption of this concept will require changes to several Orders, including 7100.8 and 8260.19. AFS-440 will put the proposal on paper for circulation.

(2) The original issue paper was prompted by the fact that there were different takeoff minimums for SIDs vs. Standard IFR Departure procedures at some airports, notably Santa Barbara, Monterey and San Francisco. All agreed that the same takeoff minimums should apply regardless of departure type. C.R. Bramble (ATO-120) and Terry Deplois (AVN-160) agreed to jointly coordinate with LAX FPO and AWP-530 to resolve specific ALPA concerns at the aforementioned airports. Wally Roberts (ALPA) will provide necessary input.

Status: (1) AFS-440 will circulate draft SID processing procedures for review. Item Open (AFS-440).

(2) ATO-120 and AVN-160 will jointly work to resolve specific ALPA SID vs. IFR Departure minimum concerns. Item Open (ATO-120 and AVN-160).

b. **92-02-103:** Minimum Crossing Altitudes on Obstacle Clearance SIDs.

There is still no consensus on this issue. C.R. Bramble (ATO-120) emphasized that when ATC vectors 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 anytime there is a climb gradient on a SID, they want a MOCA specified on the chart. They also want more terrain data available so that pilots have better situational awareness whenever vectored off of/returned to assigned routes. Tom Young (ALPA) offered to research the NASA ASRS data base for ground proximity warnings related to IFR departures.

Status: ALPA will research the NASA ASRS data base for ground proximity warnings related to IFR departures and report at the next meeting. Item Open (ATO-110).

c. **92-02-104:** TERPS paragraph 323a; Precipitous Terrain Additives.

Don Pate (AFS-450) presented a briefing on the FAA's on-going study of this issue. During the study, it was discovered that the National Center for Atmospheric Research (NCAR) had developed a computerized program to evaluate weather predictions. This model is adaptable for precipitous terrain modeling; however, the process would be labor intensive and cost approximately \$80K-\$100K per runway. Since there is no FAA funding available, follow on efforts are being coordinated with NASA Ames and the USAF to determine if alternate resources are available to address this issue. In the interim, the current process of soliciting user comments must be continued. ALPA noted that a specific request for a precipitous terrain additive on approaches to runway 15 at Windsor Locks, CT was denied by AVN-100; their rationale being that precipitous terrain additives must be applied to all approaches at a specific airport, not to a single runway. Jim Nixon (AFS-440) took an IOU to research/standardize policy.

Status: AFS-450 will continue efforts to obtain funding. AFS-440 and AVN-160 will jointly work to establish standard policy for precipitous terrain application. Item Open (AFS-440/450/AVN-160).

d. **92-02-105:** Review Adequacy of TERPS Circling Approach Maneuvering Areas and Circling at Airports with High Heights Above Airports (HAAs).

Don Pate (AFS-450) presented a status document reflecting FAA study efforts thus far. The Aircraft Simulation and Analysis for TERPS (ASAT) testing was delayed due to other projects, but is now progressing. Don emphasized that in order for this effort to be successful and provide realistic data, it is necessary that the parameters used for testing be agreeable to all. He provided a listing of factors to be considered and requested the group review the factors and forward recommended parameters to Steve Jackson (AFS-450) as soon as possible.

Status: AFS-450 will complete ASAT modeling/testing and report the results at the next meeting. Item Open (AFS-450).

e. **92-02-110:** Cold Station Altimeter Settings.

Lyle Wink (AFS-440) briefed that the initial criteria they had developed was too broad in its application and needs further refinement. Don Pate (AFS-450) noted that he had recently attended an ICAO Obstacle Clearance Panel (OCP) meeting where this issue was discussed. To date, there is no international consensus on this issue.

Status: AFS-440 will continue criteria development. Item Open (AFS-440).

f. **93-01-121**, Provision of Current IAP Procedural Directive Guidance to the Aviation Community.

Bill Hammett (AFS-420) briefed that funding was available to complete publication of AC90-XX and that AFS-420 is working with the contractor to resolve comments from the previously circulated draft. (Added: It was noted after the meeting that funding did not include the TAA concept/procedures. AFS-420 is working through the GPS Program Office to obtain additional funding to add TAA procedures to the AC. TAA procedures will probably be published as Change 1). During the discussion, the group also requested the status of the re-write of the Instrument Flying Handbook (AC61-27), noting that it was so outdated as to be a safety of flight issue. Jim Nixon (AFS-440) took an IOU to coordinate the re-write status within AFS and perhaps have an AFS-600 representative at the next ACF. Industry representatives volunteered to assist in the re-write and provided the following points of contact: ALPA-Tom Young or Dave English, APA/AA-Pat Gallagher, AA-Dick McKinney.

Status: AFS-420 will continue the publication process for AC90-XX. AFS-440 will coordinate the status of AC61-27. Item Open (AFS-420/440).

g. **94-02-133**, SIAP Optimum Final Approach Segment Descent Gradient for Categories C and D Aircraft.

Bill Thomas (ATA) led the discussion with a report from ATA's Chart and Data Display Working Group. There had been rumors circulating that this group was advocating using VNAV to convert non-precision IAPs [to] precision approaches. Bill briefed that these rumors were false. They are advocating using VNAV as a tool to provide a 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 visibility is worth the added safety. Wally Roberts (ALPA) 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 criteria for visual surface obstacle evaluation is being finalized and should be available for circulation within 2-3 months.

Status: ATA will address this item and report at next meeting. Item Open (ATA).

h. **95-01-140**: Sector Arrival Zones for GPS SIAPs and Turning Protection Over Such Fixes.

Lyle Wink (AFS-440) led a discussion on the TAA concept. Jim Nixon (AFS-440) stated that a timeline had been developed by the satellite Procedures Implementation Team (SPIT) and that a draft of TAA procedures would soon be ready for coordination outside the FAA. Bill Mosley

(ATO-120) stated that guidance will be published in the controller handbook, Order 7110.65, in January, 1997. He noted that 1200' Class E airspace is being considered for the 15 western states at the suggestion of AOPA's Safety Foundation. The intent of this airspace action is to reduce Sectional Chart clutter by not having to publish MSL values for the floor of controlled airspace. Doug Helton (AOPA) suggested that airspace changes should be addressed on a case by case basis. Tom Young (ALPA) suggested that Doug canvass the Safety Foundation and solidify AOPA's position. Hopefully, this will expedite TAA implementation. Bill Mosley noted that if the local community is not in agreement with a standard "T" approach design with an associated TAA, then a standard "I" approach design with conventional transitions from the en route structure would be the order of the day. Doug Helton (AOPA) requested some approaches with the "T" design in the AOPA headquarters area for use and feedback by AOPA users. Terry Deplois (AVN-160) agreed to attempt to accommodate this request if Doug would identify specific airports. Terry also noted that they could possibly develop "VFR Only" procedures for testing.

Status: AFS-440 will continue to track the TAA program and provide status reports until implemented. Doug Helton (AOPA) will provide a consolidated AOPA position on the TAA and controlled airspace issues. Item Open (AFS-440)/AOPA).

i. **95-01-141:** Multiple DME ARC IAFs.

Jim Nixon (AFS-440) briefed that criteria is approximately 40% completed. When finalized, it will be circulated to all interested parties for comment. Tom Young (ALPA) requested the issue be worked more vigorously.

Status: AFS-440 will continue working the issue and provide an update at the next meeting. Item Open (AFS-440).

j. **95-01-143:** Establish and Publish Procedural Maximum Speeds for Terminal Instrument Procedures.

Don Pate (AFS-450) presented a briefing demonstrating the ASAT test results for specific PT entry maneuvers at Livingston, MT. The test results, using different aircraft speeds/altitudes and varying 60 Kt wind directions, indicate that there are instances where an aircraft will depart the TERPS obstacle clearance area (NOTE: A T-NOTAM raising the IAF altitude has been issued to correct the Livingston problem). Additional testing is required to develop new criteria and/or flight procedures that will assure obstacle clearance in all instances. Discussion prompted several possible solutions, including using holding pattern vice PT criteria, limiting airspeed, etc. AFS-440/450 took an IOU to prepare an AIM item which will outline the conditions under which the current TERPS protected airspace is exceeded.

Status: AFS-440/450 will continue testing and criteria/procedural development and report progress at the next meeting. Additionally, AFS-440/450 will jointly prepare an item for the AIM. Item Open (AFS-440/450).

k. **96-01-154:** Requirement to Show Descent Angle on Approach Charts:

The group agreed that the briefing by Jim Terpstra during the discussion of issue 94-02-133 satisfied this issue.

Status: Item Closed (See Issue 94-02-133).

l. **96-01-155:** Operational Status for OROCA Use.

Bill Hammett (AFS-420) stated that AFS had approved using the OROCA [Off-Route Obstacle Clearance Area] to satisfy IFR obstacle clearance requirements with provisions that air traffic include the OROCA in the Obstruction Evaluation (OE/AAA) program, Order 7400.2. Bill Mosley (ATO-120) stated that his office is now working with AFS-420 to resolve supplemental navigation issues (see issue 96-01-156 for additional data). Wally Roberts (ALPA) noted that there are OROCA's in uncontrolled airspace. Mosley commented that airspace issues would be considered prior to implementation.

Status: ATO-110/120 will continue to work the issue and report at the next meeting. Item Open ATO-(110/120).

m. **96-01-156:** Along Track Distance (ATD) Error Assumption in GPS SIAP Criteria.

Don Pate (AFS-450) presented a briefing paper on this issue. Research and discussions were undertaken to arrive at a more representative number for GPS fix displacement error (FDE) to include accuracy, integrity, availability and continuity. There has been much interface with Dr. Young Lee, MITRE Corp., who is a recognized expert on RAIM and GPS integrity. The conclusion thus far is that FDE is not a problem in the en route arena; however, further study is necessary to reach a final conclusion. It was suggested that, in the interim, ATC provide radar monitoring until aircraft are in the approach phase.

Status: AFS-450 will continue discussion with Dr. Lee to ascertain accuracy and integrity values as they apply to use of GPS for en route navigation. Item Open (AFS-450).

n. **96-01-159:** Specified Ceiling Requirement for High HAA/HAT MDAs.

Discussion on this issue was deferred to the next meeting.

Status: All participants are to review the issue for discussion at the next meeting. Item Open (All Parties).

o. **96-01-162:** GPS NoPT Terminal Routes and PT Required terminal Routes.

Bill Hammett (AFS-420) stated that he believed that issue is not valid. The AIM clearly provides guidance that pilots will perform a PT maneuver unless the procedure is annotated NoPT or ATC provides radar vectors. This policy has been reinforced by FAA's General Counsel. Wally Roberts (ALPA) stated that ALPA sent AFS-420 an additional letter requesting policy guidance but had not received an answer.

Status: AFS-420 took the IOU to answer ALPA's letter and address this issue at the next meeting. Item Open (AFS-420).

p. **96-01-163:** Purpose of ILS Fix Inside the Precision FAF.

Bill Hammett (AFS-420) briefed that coordination with AFS-200 indicated that a gross error check of the glide slope is not required to fly a precision approach. The glide slope altitude at the OM (or non-precision FAF) is provided for reference only. It was further decided that an ILS approach could still be flown if the non-precision FAF was inoperable. Wally Roberts (ALPA) emphasized that if this is true, then 14 CFR, Part 91.175(k) defining components of an ILS system requires updating. It is suspected that this process is in progress.

Status: AFS-420 will ascertain the status of the CFR change and brief at the next meeting. Item Open (AFS-420).

q. **96-01-165:** Radar or DME fixes on SIAPs.

IAP revisions at BWI prompted this issue. C.R. Bramble (ATO-120) researched the approaches in question and as a result, the approaches were amended. All fixes on the SIAPs are now capable of multi-sensor reception. Terry Deplois (AVN-160) stated that his shop will [pay] close attention to radar fix use on SIAPs during QC review. Jim Nixon (AFS-440) stated that they will review guidance in Order 8260.19 and TERPS paragraph 161 to determine if changes are required.

Status: AFS-440 will review applicable criteria/guidance and report at the next meeting. Item Open (AFS-440).

r. **96-01-166:** Definition of “On Course”

Wally Roberts (ALPA) led the discussion noting that the current definition of “on course” does not support GPS navigation. Don Pate (AFS-450) noted that further discussion of the issue must include resolution of changing sensitivities and the capabilities of receivers to put the pilot on course. RTCA is also addressing the issue as to how it relates to descent points using GPS/FMS systems. A telcon will be held to discuss this at a later date - interested parties are: ALPA, AFS-420/440/450/Jepesen and APA.

Status: AFS-450 will take the lead in establishing the telcon. Item Open (AFS-450).

4. New Agenda Items:

a. **96-02-169:** Published RNAV Descent Angles on Non-Precision GPS SIAPs.

Discussion was led by Wally Roberts (ALPA). All agree with the issue paper and that this issue is being addressed in conjunction with Issue 94-02-133.

Status: Item Closed.

b. **96-02-170:** Visibility/RVR Issues in VNAV/RNAV IAPs.

Position paper was presented by Wally Roberts (ALPA). The paper was prompted by concern that FAA was considering making the computed intercept point of the published VNAV slope with the published MDA [DA/(H)] the missed approach point on non-precision approaches. This creates contradictions with Table 6 visibility values because, in most cases, the distance of the calculated point to the threshold will increase above Table 6 values (See discussion on issue 94-02-133). Several concepts were discussed. Jim Enias (AFS-410) advocates the DA(H) concept provided that an obstacle analysis has been conducted. AFS-440 is currently developing criteria for a visual segment obstacle analysis that hopefully will be included in TERPS Change 17. Pat Gallagher (APA/AA) advocates retaining the current visibility minimums, yet requiring a missed approach upon reaching the MAP/DA(H) point. Alternatively, the increase in visibility is an acceptable tradeoff to allow the concept. Pat then suggested an evaluation of the DA(H) concept at 10-15 sites which are highly used by several air carriers and high performance general aviation aircraft. Results of the testing would be reported back to the ACF. Wally Roberts (ALPA) again noted that any change in concept would require changes to the Code of federal regulations.

Status: APA/AA will report on concept test results at the next meeting.

Item Open (APA/AA)

c. **96-02-171:** Temporary vs. Permanent FDC NOTAMs.

Discussion was led by Tom Young (ALPA) noting that, although there has been an improvement in cleaning up T-NOTAMs, there are still many cases where T-NOTAMs are used for permanent SIAP changes. A better methodology would be to use CCP NOTAMs which will authorize charting agents to change approach charts. The problem is exacerbated when AVN-100 does not have staffing/time to formally amend procedures. Lyle Wink (AFS-440) briefed that his office has been developing better policy guidance to facilitate SIAP amendments. They will brief on progress at the next meeting.

Status: AFS-440 will update at the next meeting. Item Open (AFS-440).

d. **96-02-172:** Lack of Seamless Transition From STARs to SIAPs.

Bill Mosley briefed on several initiatives at Seattle and Las Vegas. All agree that the seamless arrival concept of STARs to corner posts or IAFs is the best methodology and the intent of the STAR Order. The issue is also being addressed in Issue 92-02-102.

Status: Item Closed.

5. Next Meeting: The next meeting is tentatively scheduled for the week of April 14, 1997 at NOAA. Specific date/time/location will be forwarded by letter.

**AERONAUTICAL CHARTING FORUM
INSTRUMENT PROCEDURES SUBGROUP
OPEN AGENDA ITEMS FROM MEETING 96-2**

<u>OPI</u>	<u>AGENDAITEM(ISSUE)</u>	<u>REQUIREDACTION</u>
AFS-440 ATO-120, AVN-160	92-02-102 (SID processing) (SFO/MRY/SBA SID Minimums)	Circulate draft procedures Fix SID/Departure Minimums.
ALPA	92-02-103 (SID MOCAs)	Research NASA ASRS data base.
AFS-450 AFS-440, AVN-160	92-02-104 (Precip. Terrain) (Application Policy)	Develop definition and criteria. Standardize policy.
AFS-450	92-02-105 (Circling Areas)	Complete ASAT modeling/testing.
AFS-440	92-02-110 (Cold Wx Altimeter)	Develop criteria.
AFS-420 AFS-440	93-01-121 (AC 90-X) (AC 61-27)	Complete project. Check re-write status.
AFS-440	94-02-133 (Descent Grad)	Develop visual segment criteria.
AFS-440 AOPA	95-01-140 (TAA for GPS) (TAA Controlled Airspace)	Track program. Provide report.
AFS-440	95-01-141 (DME ARC IAFs)	Finalize criteria & provide report.
AFS-450	95-01-143 (IAP Max. Speed)	Continue testing and prepare AIM article.
ATO-110/120	96-01-155 (OROCA Use)	Work Study issue and provide report.
AFS-450	96-01-156 (GPS ATRK Error)	Work issue & provide report.
All Parties	96-01-159 (Ceiling Req.)	Study issue.
AFS-420	96-01-162 (NoPT/PT Routes)	Answer ALPAs letter.
AFS-420	96-01-163 (ILS Fix)	Work CFR change & provide report.
AFS-440	96-01-165 (Radar/DME Fixes)	Review .19C/.3B guidance.
AFS-450	96-01-166 (On Course)	Lead telcon & Provide report.
APA/AA	96-02-170 (VNAV/RNAV Vis.)	Provide report on concept tests.
AFS-440	96-02-171 (FDC NOTAMs)	Provide briefing.

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* Monday only

** Tuesday only