

**GOVERNMENT / INDUSTRY AERONAUTICAL CHARTING FORUM
INSTRUMENT PROCEDURES GROUP
Meeting 92-02 December 15-17, 1992
Washington, DC
(Transcribed/Reformatted)**

1. **Opening Remarks:** Hal Becker, ATP-200, welcomed the group to the second Aeronautical Charting Forum (ACF) of 1992. He spoke of lean times for funding and how important the ACF will be in prioritizing and planning future challenging initiatives. Jack Howell, AFS-400 also welcomed the participants and noted that the ACF can provide the proper focus and balance between the use of new technology and current equipment, and also can play a major role in defining criteria for the new technology. Dick Powell, ATP-220 (co-chair of the ACF) welcomed the open participation of all the user groups represented and noted the progress that had been made on various agenda items from the ACF 92-1 Meeting. AFC 92-02 attendees are listed on attachment 1.

Editor's note: At ACF 92-01, the first meeting, all issues were combined (charting and IPG). It was determined to split the forum into two parts starting with ACF 92-02; Charting Group (CG) and Instrument Procedures Group (IPG). All items from meeting 92-01 remained with the CG. IPG issues commence with item #100 at ACF 92-02 (this meeting).

2. **Briefings:** None

3. **Review of Minutes of Last Meeting:** N/A

4. **Old Business (Open Issues):** N/A

5. **New Business:**

a. **92-02-100** TERPS Visual Descent Point (VDP)

VDP's are not being published on a routine basis on civilian instrument approach procedures (IAPs). ALPA inquired about the possibility of having a stabilized approach during the final phase of the IAP. This stabilized portion would be just prior to landing when the aircraft is leaving the minimum descent altitude or at 500' above ground level. ALPA was asked to develop a recommended TERPS change and present at next forum. **Action: Item Open (ALPA)**

b. **92-02-101** Turbojet Straight in Maneuvering Considerations in Non-Precision Standard Instrument Approach Procedures (SIAPs)

ALPA presented the Nashville, TN VOR RWY 31 approach as an example to illustrate this agenda item. As presented was the difficulty Category C and D aircraft have intercepting the missed approach point (MAP) on runways where missed approach procedures call for large intercept angles of up to 30 degrees. It was recommended that the MAP be moved back to the point at which the final approach course (FAC) intercepts the runway centerline extended for procedures where the VOR is collocated at the airport. A VDP is highly desirable. Order 8400.10, page 4-164 describes stabilized approaches and was cited as a reference supporting this proposal. This issue is closely related to agenda item # 92-02-100. ALPA will draw up a straw man proposal that ties this agenda item with the VDP/stabilized approach described in 92-

02-100, and will present at the next ACF. **Action: Item Open (ALPA)**

c. 92-02-102 IFR Departure Procedures and Standard Instrument Departures (SIDs)

ALPA contends that TERPS IFR departure criteria have never been uniformly applied by the FAA. Further, pilots have not been given meaningful directives in the application of departure procedures. This is especially true where dual minimum climb gradients have been applied. Adding to the confusion is the fact that SIDs generally replace IFR departure procedures at busy airports, creating a situation where dual minimums exist. Additionally, climb gradients exist for Air Traffic purposes as well as terrain clearance but none of this information is available to pilots. The GALA3 departure from LAX was used to illustrate. ALPA believes that SID construction should be incorporated into Chapter 12 of the TERPS handbook and the FIFOs or TERPS specialist should develop SIDs in lieu of Air Traffic. Further, SID criteria should be formalized and made consistent with IFR departure criteria. At the very least, Air Traffic procedure specialists responsible for SID construction should be required to attend the TERPS class. AVN and AFS-420 will review Chapter 12 of the TERPS handbook, and AFS-420 will present to ATPAC for consideration. **Action: Item Open (AVN and AFS-420).**

d. 92-02-103 Minimum Crossing Altitude (MCA) on Obstacle Clearance SIDs.

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)**

e. 92-02-104 TERPS Paragraph 323a, Precipitous Terrain Additives

ALPA presented the topic explaining that the original intent of TERPS was to increase the obstacle clearance where significant precipitous terrain underlies approach segments. The language in TERPS 323a is not specific enough to direct procedure specialists to apply precipitous terrain additives when necessary. Two cases to illustrate are instrument approaches into Medford, Oregon and Monterrey, California. In each case, the intermediate segment is several thousand feet higher than the airport elevation. These procedures were devised without consideration of the precipitous terrain characteristics that exist. ALPA recommends a sliding scale value be devised for applying precipitous terrain and paragraph 323a be changed to read "shall" instead of "should." This would eliminate discretion and force the procedure specialist to apply conservative precipitous terrain additives. Additionally, the procedures at Medford and Monterrey need to be immediately reviewed. **Action: Item Open (AVN).**

f. 92-02-105 Review of Adequacy of TERPS Circling Approach Maneuvering Areas and Circling at Airports With High Heights Above Airports (HAA's)

ALPA stated that there is little lateral obstacle buffer at the edge of the SIAP circling approach maneuvering areas. These circling maneuvering areas are based on turning radii established for each approach category (A through E). Since there is no obstacle buffer extending past the edge of the circling areas, these circling maneuvering area radii are questionable during times of strong low level winds and at high elevation airports. The present circling approach maneuvering area radii needs to be reviewed during conditions of strong low level winds and at high elevation airports. Perhaps, a tapered secondary obstacle buffer added around the primary circling maneuvering area should be added to TERPS criteria. A 30 knot wind should be considered as the adverse condition when undergoing this review. Paul Best, AFS-420 will examine this agenda item and review the PANS OPS, which utilizes a much larger area and conservative approach to defining the SIAP Circling Approach. **Action: Item Open (AFS-420)**

g. 92-02-106 Circling Approach Maneuvers at Airports with Very High Heights Above Airports (HAAs)

Circling maneuvers for operations at places such as Aspen and Eagle, Colorado, are increasingly stressful because there are numerous obstacles in the circling area. ALPA believes that circling maneuvers at high elevation, mountainous airports are very hazardous and warrant special charting consideration. At Mountainous airports, ALPA would like to see topographic information displayed on instrument approach procedure charts that contain circling maneuvering areas at high elevation airports. Further, procedurally, it may be necessary to develop criteria that would restrict or prohibit circling maneuvers in sectors which contain high terrain. ALPA will develop a proposal and possibly a chart prototype to be presented at the next forum. **Action: Item Open (ALPA)**

h. 92-02-107 Questionable Accuracy Of FAA Obstacle Data Used in the Construction of Instrument Approach Procedures.

ALPA contends that FAA procedure specialists used to use the United States Geological Survey (USGS) Quadrangle (QUADS) maps as the source for terrain and obstacle heights when constructing IAPs. Now it appears that they are using the Sectional chart as the source for this information. Further, FAA Order 8260.29A states that the accuracy of information taken from the sectional chart is +/- 3 feet. This accuracy is not realistic given that many QUADS, which are used to derive terrain elevations for the sectional, have a contour interval of 20 feet. Medford, Oregon was used by ALPA to illustrate the point. ALPA recommends that the accuracy coding used for developing instrument approach procedures be reviewed and changed appropriately to reflect the source. Also, the USGS Quads, as the best available source, should be used to construct IAPs. AVN will review the accuracy coding stated 8260.29A and 8260.19B and check the source being used to develop IAPs. **Action: Item Open (AVN)**

i. 92-02-108 Application of Holding Pattern Criteria in Instrument Flight Procedures

ALPA contends that the FAA is disregarding basic holding pattern criteria by reducing their size

in some flight procedures designed for turbojet aircraft. The Medford, Oregon holding pattern was used to illustrate where the design was inadequate and did not meet the established criteria. ALPA requested that the FAA review the criteria and consider the difference in holding pattern airspace with respect to aircraft speed, flight level and whether the aircraft is climbing or descending in the holding pattern. The FAA should review the instrument approach and departure holding pattern sizes associated with type aircraft and whether its operation is level, climbing or descending. Holding pattern criteria are described in FAA Handbook 7130.3. AVN-200 will look into the application of holding pattern criteria for instrument flight procedures. **Action: Item Open (AVN-200)**

j. 92-02-109 Holding Pattern Wind Assumptions

ALPA stated that, although current holding pattern criteria were developed in conjunction with TERPS, they are not actually a part of TERPS. Rather, holding pattern criteria were actually developed the FAA's Air Traffic. ALPA contends that wind assumptions built into these criteria are invalid. This assumption is based on multiple crew observations of low level wind observations using inertial guidance type systems. Of particular concern is the criteria's suitability to provide basic obstacle clearance at mountainous locations. Since these criteria were developed in 1967, which is prior to the use of INS type systems, they need to be reviewed. Medford, Oregon, illustrates the point. ALPA requests an evaluation of the wind assumptions presently contained in holding pattern criteria. AVN will examine the 8260-2 for Medford, Oregon, VOR. FAA (AVN-AFS) will review the criteria and report at the next forum. **Action: Item Open (AVN).**

k. 92-02-110 Cold Station Altimeter Settings

ALPA states that the FAA does not apply corrections to minimum instrument altitudes to account for very cold weather conditions or cold weather in combination with high terrain. High terrain, in this case, is defined as an area where the surrounding topography is at least 2000 feet higher than the airport's elevation. The Air Force and Canadians are currently applying cold weather altimeter corrections from the Final Approach Fix point and inward. Medford Oregon was again used to illustrate the point. The FAA, AFS-420, has been studying this issue. Ron Maunder briefed the forum on FAA findings to date. FAA has asked the Canadians to forward their information on the application of cold weather/high altitude airport corrections. AVN will review the Medford situation. AFS-420 will report on this agenda item at the next forum. **Action: Item Open (AVN-220 and AFS-420)**

l. 92-02-111 TERPS NDB System Accuracy Assumptions

ALPA inquired if the along and cross course accuracy assumptions for low frequency NDB terminal navigation had been changed from +/- 6 dg to +/- 5 dg over the last several years. If the accuracy had been changed, ALPA suggested that the issue should be further analyzed to determine if a +/- 5dg system accuracy was justified. Chuck Everest, AVN-540 stated he believed the NDB system accuracy had always been +/- 5dg. Chuck Everest will check to see if the NDB System accuracy has been changed and report back at the next forum. **Action: Item Open (AVN-540)**

m. 92-02-112 Procedure Turn Maneuvering Area and FAA Directive Information

Current TERPS criteria allow procedure turns to be predicated on intersection fixes as well as over heading a navigational facility. These criteria assume that an aircraft will remain on the outbound course until executing a reversal maneuver. FAA directives now permit pilots to execute, at their own discretion, tear drop and race track course reversals not actually authorized or specified in the procedure. When executing such a maneuver, a pilot could get out of the 30 nautical mile protected area of the trapezoid especially when the procedure is predicated on a fix. This could result in the loss of lateral obstacle protection. ALPA believes that the AIM should be changed to direct out bound pilots to stay on course except for the actuals reversal maneuver. **Action: Item Open (ALPA)**

n. 92-02-113 TERPS Paragraph 289 Close-in Final Approach Segment Obstacles

TERPS criteria call for obstacles penetrating a 7:1 slope on the final approach segment of non-precision IAPs to be noted on the procedure transmittal form (8260). Even though the obstacles are indicated on the procedure, there is no direction on the 8260 that these obstacles must be charted. ALPA would like the Order changed to require the charting of TERPS Paragraph 289 Close-in Final approach segment obstacles. FAA agreed, and will ensure that the procedure specialists indicate "chart" on the 8260 form for obstacles that penetrate the 7:1 slope defined in TERPS Paragraph 289. **Status: Item Closed**

***** *It was noted that this item should be considered closed.* *****

o. 92-02-114 FDC NOTAMs and use of Inoperative Components Table by all Users

Status: Item Closed (Withdrawn by ALPA). *Editor's note; this is discussed again at meeting 94-01*

p. 92-02-115 Instrument Approach Procedures Automation (IAPA) System

Status: Item Closed (Withdrawn by ALPA). *Editor's note; this is discussed again at meeting 94-01*

q. 92-02-116 FAA Quality Control During Development of Instrument Procedures and FAA Training of TERPS Personnel

Status: Item Closed (Withdrawn by ALPA). *Editor's note; this is discussed again at meeting 94-01*

6. Attachment:

**ACF 92-02
Attendance Roster**

Attendees	Organization
Paul Best	AFS-420
Dick Powell	ATP-220
Steve Lucchesi	ATP-220
Jack Howell	AFS-400
Harold Becker	ATP-200
Richard Muller	NOAA/ACD
Kim Behrns	NOAA/ACB
Ron Bolton	NOAA/ACB
Charles Branch	NOS/ACB
Tom Young	ALPA
Wally Roberts	ALPA
Vic Friend	ALPA
Charles Guy	ALPA
John McCormick	ALPA
Tim Killebrew	DMA (PRA)
David Thompson	ATP-220
David A. Carter	HAI
Paul H. Smith	NBAA
Robert Beatty	AFFSA IFC/AI
Rudy Ruana	Jeppesen
Wes TeWinkle	AFS-430
Charlie Schuck	EAA
George Lutz	EAA
Tom Quinlan	ASA-100
John Bell	ASA-100
David Osborne	EG&G/DTS-930
Elizabeth Matarese	ASA-100
Cliff Damhauer	AFS-420
Chuck Everest	AVN-540
Lyle G. Wink	AVN-220
John Moore	NOAA/ACD
Melissa Bailey	AOPA
Lt. Col. Hodges	AFFSA/IFC/IP
Howard L. Swaney	USDA-MOAS-AI
Dennis Newport	AFS-420
Ron Maunder	Canadian