AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
Meeting 17-01 – April 25, 2017

RECOMMENDATION DOCUMENT

FAA Control # 17-02-329

Subject: Need for CNF at terminus of DR (heading) segment

Background/Discussion: Many ILS approaches have dead reckoning segments; i.e., fly a heading to intercept the localizer. Since the advent of RNAV lateral navigation the FAA had provided computer navigation (CNF) fixes to provide a track-to-fix leg in lieu of the heading, which greatly improves accuracy and eliminates the vagaries of crosswind components, compass system errors, and mag var inconsistencies. The FAA has recently made a policy change to no longer provide CNFs in such circumstances, instead leaving it to the database vendors to provide VI-to-CF coding, which will reintroduce the vagaries of crosswind components, compass system errors, and mag var inconsistencies. For that portion of the fleet that uses RNAV lateral navigation to the final approach segment of an ILS, this change from TF-to-CNF will be contrary to the national goal of improving performance-based navigation.

Following is an illustration of TF-to-CNF and VI-to-CF:

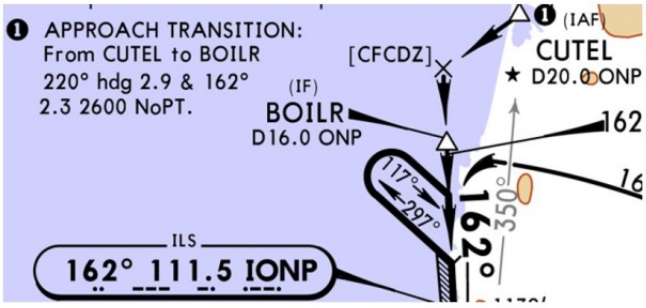

Figure 1 TF to CNF

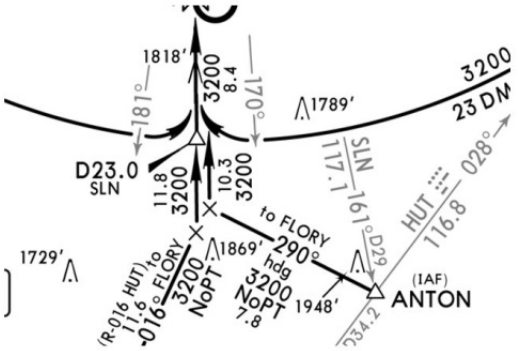

Figure 2 VI to CF

Recommendations: The recent policy decision to no longer use CNFs at the terminus of a DR ("heading") segment should be discontinued and that AIS continue to publish CNFs at the terminus of a DR segment. This will be consistent with the national objectives of improving performance-based navigation. If the FAA believes there is a limited inventory of CNF designations, then the FAA should adopt the system used by many ICAO countries in coding fixes unique to the airport, such as ONP01 or SLN08, etc.

Comments: This affects FAA coding policy and FAAO 8260.19G.

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INITIAL DISCUSSION – MEETING 17-02: Rich Boll (NBAA), briefed that the FAA no longer provides ARINC coding for procedures; it is up to the data base providers to provide coding based on the design of the procedure and how particular systems fly procedures. With the recent publication of Order 8260.19H, the FAA also removed the requirement to establish and publish a computer navigation at the point where a dead reckoning segment on an instrument approach terminates (i.e., intersects the point where positive course guidance is provided). The Rich showed examples (views) of CNF fixes. Rich stated that without a CNF fix, the only way to code a DR segment is as a course to intercept leg; however, some RNAV systems unable to accommodate a course to intercept leg. If the RNAV system can't accommodate a course to intercept leg, then the pilot is forced to manually change modes (heading mode to course intercept then back to approach mode) whereas with a CNF the aircraft could stay on an RNAV path until course intercept. Rich stated the belief that inclusion of a CNF would not conflict with the FAA's desire to avoid telling manufacturers how to code instrument procedures, rather it is a request to provide a waypoint (CNF) to assist in aligning the aircraft with the final approach course. Rich would like the policy that was removed from Order 8260.19H to be returned so that the establishment of a CNF would once again be required at a DR legs termination point (on a conventional approach procedure). John Bordy (Flight Procedure Standards Branch) stated the requirement was removed since the only reason it was firstly established was to support coding, which the FAA is no longer providing. He also stated DR segments are adequately evaluated for both flyability and obstacle clearance purposes. Rich concurred this is not a TERPS issue, but the inclusion of a CNF would make the procedure easier to fly. John asked the group for their opinion and many positive comments were received indicating their support for the recommendation as a means to reduce pilot workload. There was a discussion on whether or not the government needs to provide a fix on the procedure, or if it's possible for data providers to code their own fix. Ted Thompson (Jeppesen) stated CNFs were originally used to support the GPS overlay program and added that Jeppesen has the capability to create their own CNFs but would prefer the FAA provide them. John Moore (Jeppesen) cautioned about changing policy without thinking about unintended consequences. John Bordy indicated we aren't committing to anything, but Flight Standards is open to having an internal conversation related to this recommendation. Rune Duke (AOPA) indicated AOPA fully supports this recommendation. Lev Prichard (ALPA) indicated he supports this recommendation as well. Ted Thompson stated an added benefit of government provided CNF fixes is that they enhance chart-database consistency. John Moore questioned why the FAA should be compelled to provide a CNF fix on an ILS procedure and believes we (the FAA) need to be able to answer that question before changing policy.

Action Item: John Bordy will discuss issue internally with Flight Standards and report back on developments at the next ACF-IPG.

Status: Item accepted.

Meeting 18-01: John Bordy (Flight Procedure Standards Branch) briefed the practice of establish CNF fixes at the end of a dead reckoning segment was just recently terminated due to the FAA's desire to stop adding fixes solely for coding purposes. John indicated we are open to the idea even though this request appears to be contrary to the direction we intended to go. John

stated this issue will be referred to the June meeting of the US-IFPP for action. Rich Boll (NBAA) then asked if CNF fixes will remain on ILS approach procedures when serving as a final approach course fix (FACF) for coding purposes. Tony Lawson (Aeronautical Information Services) indicated those will remain when no intermediate fix is present on the ILS procedure.

Action Item: John Bordy will refer this item to the US-IFPP.

Status: Item open.

Meeting 18-02: John Bordy (Flight Procedures and Airspace Group) briefed this was initially presented to the US-IFPP in June; however, no action has been take yet. This issue will be discussed in further detail at the next meeting in January.

Action Item: John Bordy will report on the US-IFPP's determination following their January meeting.

Status: Item open.

Meeting 19-01: John Bordy, Flight Procedures and Airspace Group, briefed the issue directly from the slide: discussing a summary and current status. There was no change to status due to the cancellation of US-IFPP 19-01. This will be discussed at the next US-IFPP meeting in June.

Action Item: John Bordy will present at US-IFPP 19-02.

Status: Item open.

Meeting 19-02: John Bordy, FAA Flight Procedures and Airspace Group, briefed the issue summary and current status from the slide. The US-IFPP considered the issue and determined it will not be introduced to the policy documents. At this time, there is no intent to change the FAA documents. Rich Boll, NBAA, will have follow-up discussions and advise if he wants the issue closed or left open.

Action Items:

- Rich Boll to follow up with other participants

Status: TBD – pending Rich Boll feedback

Meeting 20-02: Jeff Rawdon, FAA Flight Procedures and Airspace Group (FPAG), briefed the issue summary and current status from the slide. Jeff said the US-IFPP decided the benefit was not warranted, and wants to close the issue. Dan Wacker, FPAG, advised he has seen CNFs used

on some departures to replace fixes when a navigation facility loss has caused the loss of a fix and asked if criteria should allow this. Jeff said this came up on STARs, and restrictions were added in Order 8260.3E to prohibit dead reckoning segments for conventional STARs. Rich Boll, NBAA, said it should be considered that pilots fly almost everything with RNAV substitution up to the FAF. He then briefed pilot issues from slides. NBAA wants CNF fixes on dead reckoning legs. John Moore, Jeppesen, discussed avionics capabilities between different aircraft with Rich Boll, and coding issues with some equipment. John also inquired about modifying the NAS for a minority of cases. Joel Dickinson, FAA Flight Operations Group (FOG), said there is no mandate for FAA to code conventional procedures, but some data houses do code those procedures. If the FAA mandates the inclusion of a CNF fix on a conventional procedure, then it could disenfranchise users not using RNAV/RNAV substitution as a navigational technique, which could add an unwanted PBN requirement to a conventional procedure. Jeff added the FAA provides source documentation, not coding. Rich said if the different data houses code their own CNF fixes, then there will be differences in named fixes. Mike Stromberg, UPS and GA pilot said there are thousands of small aircraft upgrading their equipment and this would help them, adding again the possibility of name confusion since controllers will not know what the pilot is talking about. John Collins, GA pilot, expressed that a majority of aircraft are affected by this. Joshua Fenwick, Garmin, said they can create waypoints, but standardization issues exist, and asked if coordinates could be published. Joel said this introduces a PBN leg to the conventional procedure, and would therefore have an equipage requirement and a requirement for a PBN notes box. Jeff said he understands the interest surrounding this issue, but it was presented to the US-IFPP, and the decision was made to not pursue this. Rich discussed there may be AIM guidance that will require changes with this decision. FPAG and FOG will look into any required actions regarding AIM guidance.

Action:

- Flight Procedures and Airspace Group and Flight Operations Group will determine if changes are required to the AIM to remove information regarding CNFs.

Status: Item closed