Continuous Descent Final Approach

Monday, March 12 | 0900-1000

PRESENTED BY:
Don Trekell – Kimberly-Clark Corp
Continuous Descent Final Approach

Question

What is your familiarity with the technique of the Continuous Descent Final Approach technique?
Continuous Descent Final Approach

Answers Please choose from the following

1. Never heard of it.
2. Am familiar with the concept, but have never used it
3. Have tried it, with or without training
4. Have received training, used the technique and have incorporated into our SOPs.
Continuous Descent Final Approach

Overview

• What is CDFA and why is it being implemented?
• Do I need special equipment?
• Where is it used?
• What is the theory regarding flying a CDFA?
• Am I required to do this?
• Is a DA really a DA on a CDFA?
• When might CDFA not be the best solution?
CDFA

Advantages

• Increased safety by employing the concepts of stabilized approach criteria and procedure standardization
• Improved pilot situational awareness (SA) and reduced pilot workload
• Improved fuel efficiency
• Reduced noise levels
• Similar procedures with APV and precision approaches
• Reduced probability of infringement on required obstacle clearance

FAA AC120-108
CDFA Theory
CDFA

Approach Example Without Using Continuous Descent Final Approach

FAA AC120-106
CDFA

Approach Example Using Continuous Descent Final Approach
CDFA

Approach / Equipment Requirements

• No specific aircraft equipment other than that specified by the title of the NPA procedure
• Requires the use of a published VDA or barometric vertical guidance (GS) on the IAP
• Must not descend below the MDA when executing a missed approach from a CDFA
• Must follow lateral track to MAP on missed approach
CDFA

Important Details

- Where CDFA is utilized as advisory on overlay or approaches without vertical guidance such as VOR, NDB, LNAV
- Even though a DA is published, descent below the MDA not permitted unless the required visual cues are present.
- Calculation of a DA (H) above the MDA(H) (DDA) is required to not allow the aircraft to descend below the MDA unless required visual cues for landing are present.
CDFA – French State Procedures
Operating Minimums Using MDA(H) as a DA(H) – CDFA Flight Technique

• The operational minima published on French non-precision approach charts have been determined based on the assumption that these approaches will be flown using the CDFA flight technique unless otherwise stated by the authority for a particular approach to a particular runway

• The CDFA flight techniques implies a continuous descent on final approach without a level off at the MDA(H)

• To avoid descending below the MDA in case of a missed approach, France State Authority recommends adding vertical margins to the published MDA(H) to use as a DA(H)
<table>
<thead>
<tr>
<th>Aircraft Category</th>
<th>Margin/Add-On</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20ft</td>
</tr>
<tr>
<td>B</td>
<td>30ft</td>
</tr>
<tr>
<td>C</td>
<td>40ft</td>
</tr>
<tr>
<td>D</td>
<td>60ft</td>
</tr>
</tbody>
</table>

Increase RVR by 200 meters for CAT A/B and 400 meters for CAT C/D not to exceed 5000 meters when not using CDFA.
CDFA on a Timing Approach

For Training Only – Not for Navigation
### FIGURE 3. RATE OF DESCENT TABLE

<table>
<thead>
<tr>
<th>CLimb/Descent Angle (degrees and tenths)</th>
<th>GROUND SPEED (knots)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
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<tr>
<td>2.0</td>
<td>210</td>
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<tr>
<td>2.5</td>
<td>265</td>
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<tr>
<td>2.7</td>
<td>287</td>
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<tr>
<td>2.8</td>
<td>297</td>
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<td>2.9</td>
<td>308</td>
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<td>3.0</td>
<td>318</td>
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<td>3.1</td>
<td>329</td>
</tr>
<tr>
<td>3.2</td>
<td>340</td>
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<td>3.3</td>
<td>350</td>
</tr>
<tr>
<td>3.4</td>
<td>361</td>
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<tr>
<td>3.5</td>
<td>370</td>
</tr>
<tr>
<td>4.0</td>
<td>425</td>
</tr>
</tbody>
</table>
CFDA from a Step Down Fix

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CFDA from a Step Down Fix

Compute angle to step down,
Then fly published angle to MAP

For Training Only – Not for Navigation
CFDA from a Step Down Fix

Compute distance to delay descent, Then fly published angle to MAP

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
<th>B (NM)</th>
<th>C (NM)</th>
<th>D (NM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-18</td>
<td>760-1</td>
<td>679 (700-1)</td>
<td>760-2</td>
<td>679 (700-2)</td>
</tr>
<tr>
<td>CIRCLING</td>
<td>760-1</td>
<td>679 (700-1)</td>
<td>760-2</td>
<td>679 (700-2)</td>
</tr>
<tr>
<td>WAPIM FIX MINIMUMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-18</td>
<td>540-1</td>
<td>459 (500-1)</td>
<td>540-1½</td>
<td>459 (500-1½)</td>
</tr>
<tr>
<td>CIRCLING</td>
<td>540-1</td>
<td>459 (500-1)</td>
<td>580-1½</td>
<td>499 (500-1½)</td>
</tr>
</tbody>
</table>

For Training Only – Not for Navigation

VOR RWY 18
**CDFA?**

- What calculations would be necessary to use CDFA?
- Would “Dive and Drive” be better suited here?
- CDFA may not always be the best choice, or even possible
CDFA Requires Planning

• The concept is simple
  – A constant angle and constant ground speed
  – Predictable outcome as to position
  – Minimal power and pitch changes as compared to “dive and drive”
• Although simple, training, preparation and practice are crucial
• Well developed SOPs are important
CDFA FLIGHTCREW TRAINING
AC120-108

- CDFA should become a standard procedure of suitable NPAs
- Should revise their flight manuals and/or SOPs to identify CDFA as a standard method of performing NPAs
- Additional flight training not required but appropriate ground training should be provided
CDFA FLIGHTCREW TRAINING

• Should receive training specific to aircraft type and how to use the navigation systems when using CDFA

• (IP Tip: Use Sim time to train these techniques)

• NOTE: CDFA calculations can assist in monitoring ILS, LNAV/VNAV, LPV and other approaches using vertical guidance
Summary

• What is CDFA and why is being implemented?
• Do I need special equipment?
• Where is it used?
• What is the theory to flying a CDFA?
• Am I required to do this?
• Is a DA really a DA on a CDFA approach?
• When might CDFA not be the best solution?
References

• ICAO DOC 8168 Arrival and Approach Procedures (available in Jepps)
• FAA AC 120-108 Continuous Descent Final Approach
• JAR-OPS 1.430 Continuous Descent Final Approach
• French AIP SUP 104/11
• Jeppesen Briefing Bulletin 02-B
• Jeppesen Briefing Bulletin 04-A
• Jeppesen Approach Chart Clinic by Jim Terpstra
• FSF ALAR Briefing Note 7.2 Constant Angle Non-precision Approach
• Transport Canada CBAAC No. 0238
• Australia CAAP 178-1(2) Non-precision Approaches (NPA) & Approaches with Vertical Guidance
• FAA AC 120-71 Standard Operating Procedures for Flight Deck Crewmembers
• FAA Aeronautical Information Manual (AIM)
• FAA Instrument Procedures Handbook (FAA H-8261-1A)
Continuous Descent Final Approach

Thank you for attending!