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PERATURAN DIREKTUR JENDERAL PERHUBUNGAN UDARA  
NOMOR: KP.016 TAHUN 2012

TENTANG

PETUNJUK DAN TATA CARA BAGIAN 120-CSEA 008 (*ADVISORY CIRCULAR PART 120 - CSEA 008*), PANDUAN BAGI OPERATOR UNTUK PELAKSANAAN PENDEKATAN AKHIR SUDUT TETAP PADA PENDEKATAN NON PRESISI (*GUIDANCE FOR OPERATORS FOR CONDUCTING CONSTANT DESCENT FINAL APPROACH (CDFA) FOR NON - PRECISION APPROACHES*)

DENGAN RAHMAT TUHAN YANG MAHA ESA

DIREKTUR JENDERAL PERHUBUNGAN UDARA,

- Menimbang : a. bahwa untuk menjamin keselamatan penerbangan dan mengantisipasi perkembangan teknologi penerbangan, perlu dilakukan pengharmonisasian standar aturan mengenai Panduan Bagi Operator Untuk Pelaksanaan Pendekatan Akhir (*CDFA*) Sudut Tetap Pada Pendekatan Non Presisi (*Guidance For Operators For Conducting Constant Descent Final Approach (CDFA) For Non - Precision Approaches*);
- b. bahwa untuk melaksanakan hal sebagaimana dimaksud pada huruf a, perlu ditetapkan Petunjuk Dan Tata Cara Peraturan Keselamatan Penerbangan Sipil Bagian 120-CSEA 008 (*Advisory Circular Part 120 - CSEA 008*), Tentang Panduan Bagi Operator Untuk Pelaksanaan Pendekatan Akhir (*CDFA*) Sudut Tetap Pada Pendekatan Non Presisi (*Guidance For Operators For Conducting Constant Descent Final Approach (CDFA) For Non - Precision Approaches*) dengan Peraturan Direktur Jenderal Perhubungan Udara;
- Mengingat : 1. Undang-Undang Nomor 1 Tahun 2009 tentang Penerbangan (Lembaran Negara Republik Indonesia Tahun 2009 Nomor 1, Tambahan Lembaran Negara Republik Indonesia Nomor 4956);
2. Peraturan Pemerintah Nomor 3 Tahun 2001 tentang Keamanan dan Keselamatan Penerbangan (Lembaran Negara Republik Indonesia Tahun 2001 Nomor 9, Tambahan Lembaran Republik Indonesia Nomor 4075);
3. Peraturan Presiden Nomor 47 Tahun 2009 tentang Pembentukan dan Organisasi Kementerian Negara sebagaimana diubah terakhir dengan Peraturan Presiden Nomor 91 Tahun 2011;
4. Peraturan Presiden Nomor 24 Tahun 2010 tentang Kedudukan, Tugas dan Fungsi Kementerian Negara Serta Susunan, Organisasi, Tugas Dan Fungsi Eselon I Kementerian Negara sebagaimana telah diubah dengan Peraturan Presiden Nomor 92 Tahun 2011;



5. Keputusan Menteri Perhubungan Nomor T.11./2/4-U Tahun 1960 tentang Peraturan Keselamatan Penerbangan Sipil (CASR) sebagaimana telah diubah terakhir dengan Peraturan Menteri Perhubungan Nomor KM 57 Tahun 2010;
6. Peraturan Menteri Perhubungan Nomor KM 60 Tahun 2010 tentang Organisasi dan Tata Kerja Kementerian Perhubungan;

MEMUTUSKAN

Menetapkan : PETUNJUK DAN TATA CARA BAGIAN 120-CSEA 008 (*ADVISORY CIRCULAR PART 120 - CSEA 008*) PANDUAN BAGI OPERATOR UNTUK PELAKSANAAN PENDEKATAN AKHIR SUDUT TETAP PADA PENDEKATAN NON PRESISI (*GUIDANCE FOR OPERATORS FOR CONDUCTING CONSTANT DESCENT FINAL APPROACH (CDFA) FOR NON - PRECISION APPROACHES*).

Pasal 1

Petunjuk Dan Tata Panduan Bagi Operator Untuk Pelaksanaan Pendekatan Akhir Sudut Tetap Pada Pendekatan Non Presisi (*Guidance For Operators For Conducting Constant Descent Final Approach (CDFA) For Non - Precision Approaches*), sebagaimana tercantum dalam Lampiran Peraturan ini.

Pasal 2

Direktur Kelaikan Udara dan Pengoperasian Pesawat Udara mengawasi pelaksanaan Peraturan ini.

Pasal 3

Peraturan ini mulai berlaku sejak tanggal ditetapkan.

Ditetapkan di : Jakarta  
pada tanggal : 17 Januari 2012

DIREKTUR JENDERAL PERHUBUNGAN UDARA

ttd

HERRY BAKTI

SALINAN Peraturan ini disampaikan kepada:

1. Sekretaris Jenderal;
2. Inspektur Jenderal;
3. Sekretaris Direktorat Jenderal Perhubungan Udara;
4. Para Direktur di lingkungan Ditjen Perhubungan Udara;
5. Para Kepala Otoritas Bandar Udara;
6. Para Kepala Bandar Udara UPT di lingkungan Ditjen Perhubungan Udara;
7. Direktur Utama PT. Angkasa Pura I (Persero);
8. Direktur Utama PT. Angkasa Pura II (Pesero).

Salinan sesuai dengan aslinya

KEPALA BAGIAN HUKUM DAN HUMAS





LAMPIRAN PERATURAN DIREKTUR JENDERAL PERHUBUNGAN UDARA

NOMOR : **KP.016 TAHUN 2012**  
TANGGAL : **17 Januari 2012**

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# **Advisory Circular**

**120 - CSEA 008**

## **GUIDANCE FOR OPERATORS FOR CONDUCTING CONSTANT DESCENT FINAL APPROACH (CDFA) FOR NON-PRECISION APPROACHES**

Amendment : 0  
Date :

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**REPUBLIC OF INDONESIA – MINISTRY OF TRANSPORTATION  
DIRECTORATE GENERAL OF CIVIL AVIATION  
JAKARTA – INDONESIA**



## FOREWORD

1. **PURPOSE** : This advisory circular (AC) provides information and guidance to Air Operators for conducting constant descent final approach for non precision approach.
2. **REFERENCE** : This advisory circular is advisory only and should be used in accordance with the applicable regulation.
3. **CANCELATION** : -
4. **AMENDMENT** : Amendment of this Advisory Circular should be approved by Director General of Civil Aviation.

DIRECTOR GENERAL OF CIVIL AVIATION

ttd

HERRY BAKTI

Salinan sesuai dengan aslinya  
KEPALA BAGIAN HUKUM DAN HUMAS



ISRAFULHAYAT



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## CHAPTER 1 - GENERAL

### 1. PURPOSE

- a. Traditional step-down approaches are based on an obstacle-clearance profile and such approaches are not optimum for modern turbine aircraft and turboprop aircraft. Flying a constant-angle approach profile provides a more stabilized flight path, reduces workload, and reduces the risk of error.
- b. The ICAO *Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS)*, prescribes a stabilized approach in that the aircraft must be in a stabilized position at a certain altitude. For an optimum approach technique, the stabilization should not only exist at a certain position, but should be a continuous state, established as early as possible after joining the final approach track. An optimum landing maneuver requires the aircraft to reach the decision altitude or point in a stabilized state, in order to allow sufficient time for the pilot to assess the visual cues for the decision to land or to go around. The aircraft's attitude and position relative to the runway should be similar in each approach, to the greatest extent possible, in order to permit the pilot to utilize *Standard Operating Procedures (SOP)* which are similar for all types of instrument approaches.

#### c. Advantages of *Constant Descent Final Approach (CDFA)*

Compared to the steep descent approach technique where the aircraft descends step by step prior to the next minimum altitude, a Constant Descent Final Approach technique has the following advantages:

- (1) The technique enhances safe approach operations by the utilisation of simplified standard operating practises;
- (2) Approach technique reduces pilot workload and enhances situational awareness;
- (3) Approach profile affords greater obstacle clearance along the final approach course;
- (4) Approach technique is similar to *ILS* techniques, including the missed approach and the associated go-around maneuver;
- (5) Approach technique affords procedural integration with *VNAV* approaches;
- (6) Aircraft attitude when on the required constant angle descent path facilitates acquisition of visual cues;
- (7) The constant angle descent profile flown in a stabilized manner is the safest approach technique for all type of approach operations;



- (8) Approach profile is fuel efficient; and
  - (9) Approach profile affords reduced noise levels.
- d. This *Advisory Circular (AC)* contains information to encourage air operators to develop Standard Operating Procedures and train pilots to fly a *CDFA* when flying a published non-precision approach procedure.
  - e. The AC provides information that air operators may utilize to develop constant descent final approaches when flying non-precision approach procedures for all aircraft types.
  - f. Modern aircraft may utilize aircraft navigation systems to achieve *CDFA* non-precision approach procedures utilizing *VNAV* and other navigation system capabilities.

## 2. APPLICABILITY

While operators can develop additional standard operating procedures for aircraft with more advanced navigation systems, they can also establish similar *CDFA* procedures utilizing a *Derived decision altitude (Height) (DDA (H))*, for all aircraft types. This AC does not list every important *SOP* topic or dictate exactly how *CDFA* procedures should be developed. It provides guidance on some of the considerations for implementation of *CDFA* which air operators may adapt for their particular aircraft and operation.

## 3. BACKGROUND

Analysis of accident data indicates that the accident rate is five times greater during non-precision approaches than when aircraft are conducting precision approaches. In the interest of safety, air operators should discontinue the use of step-down or "dive-and-drive" non-precision approach procedures as soon as, and wherever possible. Air operators who have yet to do so should, at the earliest possible date, develop procedures and train pilots to fly *CDFA* when flying non-precision approach procedures. All types of aircraft can fly procedures utilizing a constant rate descent, even those with just basic navigation capabilities.

Instrument approach procedures are normally identified by the name of the city or town or area which the aerodrome serves, the name of the aerodrome, the abbreviation of the type of radio navigation aid(s) on which the instrument approach procedure or the visual maneuvering (circling) procedure is established and the designator of the runway where applicable.

When an instrument approach procedure is designed for *RNAV*, the additional abbreviation "*RNAV*" is given. If the procedure is restricted to specific sensors, these are indicated in subscript and parenthesis "*RNAV*<sub>(DME/DME)</sub>".

For a *VOR/DME RNAV* procedure, the additional abbreviation "*RNAV*" or "*RNAV*<sub>(VOR/DME)</sub>" is followed by the identification of the reference *VOR/DME*, and when the instrument approach procedure is designed for *RNP*, the abbreviation "*RNP*" shall be applied, and the *RNP* value shall be published in subscript and parenthesis, e.g. "*RNP*<sub>(0.3)</sub>".



When operationally required, separate charts shall be published for each sensor, or for a combination of navigation sensors. Separate charts shall only be published if the routes differ laterally or vertically.

Therefore, regardless of the additional on board navigation capability an aircraft may have, the navigation aid(s) on which the instrument approach procedure is based are always to be used as primary navigation aid to conduct all instrument approaches. However, the additional aircraft navigation capability can be used to supplement the information provided by the primary aids.

The International Civil Aviation Organization has amended *Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS)*, Volume I, Part III, Chapter 3, paragraph 3.5.4. The revision states that compatible with the primary safety consideration of obstacle clearance non-precision approach design shall provide the optimum final approach descent gradient of 5.0 per cent, or constant approach slope of 3 degrees. Information provided in approach charts shall display the optimum constant approach slope.

In addition the revision requires air operators to include in their standard operating procedures specific guidance to utilize on-board technology, combined with ground-based aids such as *Distance Measuring Equipment (DME)*, to facilitate the execution of optimum constant approach slope descents during non-precision approaches.



## CHAPTER 2 - *Constant Descent Final Approach (CDFA)* PROCEDURES

### 1. DEFINITION OF NON-PRECISION APPROACH

*Non-precision approach and landing operations:* An instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance.

### 2. DERIVED DECISION ALTITUDE (HEIGHT) (DDA(H)) CONCEPT

In order to support timely implementation of *CDFA* approaches and reduce the risk of *CFIT*, this Advisory Circular also introduces a new definition of the term *DDA(H)*. Flight Standards may apply the information in this Advisory Circular to aid operators in approving those expanded *VNAV* operations.

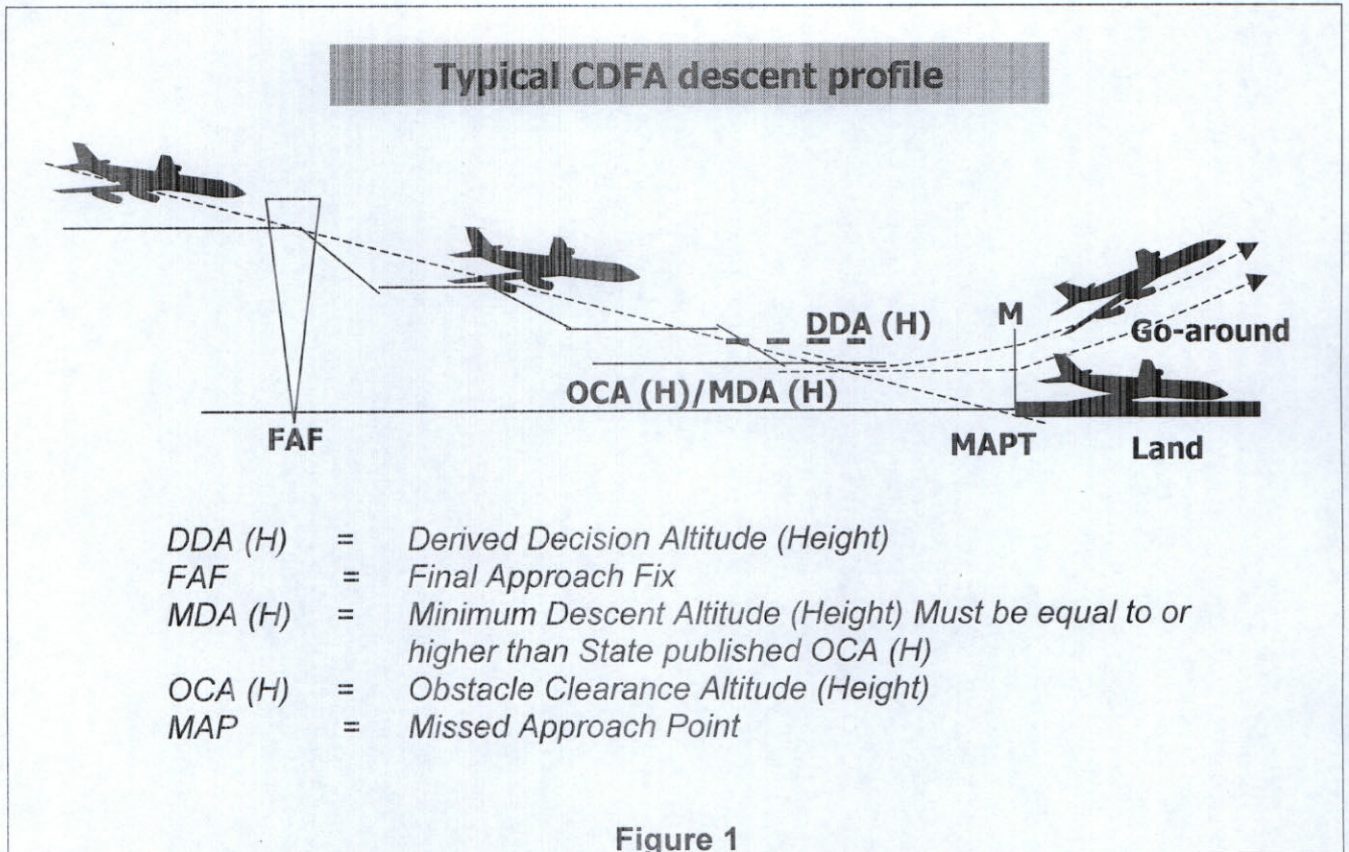
Air operators need to determine a *DDA(H)* for each *CDFA* approach they intend to fly. *DDA(H)* must be established by adding a safety margin to the published *OCA(H)* or the published *MDA* whichever is higher. The safety margin should be sufficient to ensure that the aircraft will not descend below the published *MDA(H)* when a decision to execute a missed approach is made at the *DDA(H)*.

Air operators may need to establish aircraft type specific safety margins for each aircraft type operated and establish type specific *DDA(H)* for each approach. The *DDA(H)* is a point located on the centreline of the approach track and of the stabilized descent profile at an altitude defined by the operator.

*CDFA* would allow the aircraft to be flown on the published descent path from the *Final Approach Fix (FAF)* to the *DDA*. The *DDA* is a point from which a stabilized approach can be continued visually to a landing; or, if still in *Instrument Meteorological Conditions (IMC)*, a point from which a missed approach can be initiated and conducted with the assurance that the aircraft will not descend below the *MDA(H)* or below the State published *OCA (H)*, whichever is higher.

Flight crews need to confirm that the descent path will remain at or above all step-down fixes published on the approach chart. An example of a typical *CDFA* profile is depicted in Figure 1.





### 3. FLIGHT TECHNIQUE

The continuous descent approach technique can be flown on almost any published non-precision approach when the control of the descent path is aided by either:

- a recommended descent rate based on estimated ground speed is provided on the approach chart ; or
- the descent path is depicted on the chart.

In order to facilitate the requirement above, the operator should either provide charts that depict the appropriate cross check altitudes/heights with the corresponding appropriate range information, or such information should be calculated and provided to the flight-crew in an appropriate and useable format.

To achieve a continuous descent flight path on an approach procedure where stepdown fixes are specified, descent may be delayed until after passing the *FAF*, or the *FAF* crossed at an increased altitude height. If a greater height is used, *ATC* clearance should be obtained to assure separation.

For approaches flown coupled to a designated descent path using computed electronic glide-slope guidance, (nominal 3 degree path) the descent path should be appropriately coded in the flight management system data base and the specified navigational accuracy should be determined and maintained throughout the operation of the approach.

With an actual or estimated ground speed and a designated decent profile/path and required descent rate the approach is flown by crossing the *FAF* configured and on-speed. The tabulated or required descent rate is established and flown to the *DDA(H)* where the decision to land or go-around must be made, observing any step-down crossing altitudes if applicable. The aeroplane should be configured and on-speed as early as practicable, but preferably not later than the *FAF*.



To assure the appropriate descent path is flown the pilot not flying should announce crossing altitudes as published fixes and other designated points are crossed, giving the appropriate altitude or height for the appropriate range as depicted on the chart. The pilot flying should promptly adjust the rate of descent as appropriate.

An option to ensure that the go-around manoeuvre is initiated not later than the *DDA (H)*, is to announce by the pilot not flying at an altitude of 100 ft above the *DA/MDA*, that the minima are approached.

With the required visual reference requirements established, the aircraft should be in position to continue descent through the *DDA(H)* and below the *MDA(H)* with little or no adjustment to attitude or thrust/power.

When the visual reference requirements are not established at the *DDA(H)* the missed-approach procedure is executed without delay. Prompt go-around action is necessary if the required visual reference is not obtained on reaching the *DDA(H)* in order that the aircraft does not descend below *MDA*.

The maneuver associated with the vertical profile of the missed approach should be initiated not later than reaching the *DDA(H)* specified by the operator for the approach. Any turning maneuver associated with the missed approach should not be initiated before reaching the *Missed Approach Point (MAP)*.

The Missed Approach Point may be located prior to the runway threshold. If the aircraft is above the optimum flight path the missed approach point could be reached prior to the *DDA(H)*. An immediate climb must be initiated in such a case.

#### **4. DESCENDING BELOW MINIMUM DESCENT ALTITUDE (HEIGHT) (MDA(H))**

During a non-precision approach, the *Pilot Flying (PF)* is either hand-flying the aircraft or supervising AP operation; the *Pilot Not Flying (PNF)* is responsible for acquiring and calling out the visual references. Continuing the approach below the *MDA(H)* is permitted only if the required visual references has been acquired by the *PF*.

Note: Some organizations are utilizing the term *Pilot Monitoring (PM)* instead of *Pilot Not Flying (PNF)*.

If adequate visual references are not acquired when reaching *DDA*:

- Initiate a go-around climb; and,
- Continue on the approach track until over the *Missed Approach Point (MAP)* (to guarantee obstacle clearance during the go-around) and fly the published missed approach procedure. No turn should be initiated before reaching the missed approach point and, if a minimum altitude is indicated on the approach chart, until the indicated altitude has been reached.



ICAO states that although the flight crew should over fly the *MAP* before conducting the published missed approach procedure, "this does not preclude flying over the *MAP* at an altitude/height greater than that published in the procedure".

## 5. TRAINING

The operator should ensure that prior to conducting *CDFA* each flight crewmember undertakes:

- The appropriate training and checking to include training on the techniques and procedures appropriate to the operation to be conducted that are stipulated in paragraph above;
- When approved to operate *CDFA* the operator proficiency check should include at least one *CDFA* to a landing or go around as appropriate. The approach should be operated to the lowest appropriate *DDA(H)*; and if conducted in a Simulator the approach should be operated to the lowest approved *RVR/Visibility*;
- The policy for the establishment of continuous descent paths and approach stability are to be enforced both during initial and recurrent pilot training and checking. The relevant training procedures and *SOP* should be documented in the Operations Manual; and
- The training should emphasize the need to establish and facilitate joint crew procedures and *CRM* to enable accurate descent path control and the requirement to establish the aeroplane in a stable condition as required by the operator operational procedures.

*Emphasis during training should be placed on the flight crews:*

- Need to maintain situational awareness at all times, in particular with reference to the vertical and horizontal profile;
- Need to maintain good communication channels throughout the approach; and
- Ability to maintain accurate descent path control particularly during any manually flown descent phase. The non operating / non-handling / monitoring pilot should facilitate good flight path control by:
  - Monitoring of flight path during the whole approach including flight below *DDA(H)* to the landing;
  - Communicating any altitude/height crosschecks prior to the actual passing of the range/altitude or height crosscheck;



- Prompting as appropriate changes to the target rate of descent.

*Actions to be taken at the DDA(H):*

- Need to ensure that the decision to go around must at the latest have been taken upon reaching the *DDA(H)* in order to avoid a temporary descent below the published *MDA(H)*, specifically in case of an very early missed approach point (application of an “approaching minima” call);
- Understanding of the need for prompt go around action when at *DDA(H)* if the required visual reference has not been obtained;
- Understanding and significance of a *CDFA* flown to a *DDA(H)* with an associated *MAP*;
- Understanding of the implications of early go around manoeuvres when undertaking *CDFA* to a *DDA(H)* with an associated *MAP*; and
- Understanding of the possible loss of the required visual reference when not conducting a *CDFA* for aeroplane types/class that require a late change of configuration and or speed to ensure the aeroplane is in the appropriate landing configuration.