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AERONAUTICAL INFORMATION CIRCULAR

SUBJECT: INSTRUCTION ESTABLISHING THE OPERATIONAL MINIMA APPLICABLE AT AERODROMES OPEN TO AIR TRAFFIC.

This AIC cancels and supersedes AIC A 02/01 of 20 SEPT 2001.

Low visibility procedures (RVR less than 550 M) do not apply to all
aerodromes open to public air traffic.

DEFINITIONS

DECISION ALTITUDE (DA) OR DECISION HEIGHT (DH)

Decision altitude (DA) or decision height (DH). A specified altitude or height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Decision Altitude (DA) is referenced to mean sea level (MSL), while Decision Height (DH) is referenced to the threshold elevation.

OBSTACLE CLEARANCE ALTITUDE (OCA) OR OBSTACLE CLEARANCE HEIGHT (OCH)

The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

MINIMUM DESCENT ALTITUDE (MDA) OR MINIMUM DESCENT HEIGHT (MDH)

A specified altitude or height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.

HORIZONTAL VISIBILITY

Visibility in a horizontal direction measured at an aerodrome by the appropriate services using specified techniques. Horizontal visibility is generally expressed either as meteorological horizontal visibility or as runway visual range (RVR), which correspond to the most commonly accepted methods for measuring horizontal visibility.

METEOROLOGICAL HORIZONTAL VISIBILITY

The lowest value measured during a 360-degree observation around the horizon:

- By day, the shortest distance at which prominent unlit objects can be identified.
- By night, the shortest distance at which prominent lit objects can be identified.

RUNWAY VISUAL RANGE (RVR)

The distance over which the pilot of an aircraft on the runway centerline can see the runway markings or the lights delineating the runway or its centerline.

VERTICAL VISIBILITY

The height above the aerodrome level at which a meteorological balloon ceases to be visible to the observer who released it.

AERODROME OPERATIONAL MINIMA

Operational minima are the values that define the limits of aerodrome use. They are expressed in terms of minimum altitude or height and minimum visibility or Runway Visual Range (RVR):

- **For take-off:** Expressed in terms of runway visual range (RVR) and/or visibility, and, if necessary, cloud base height.
- **For landing with a non-precision approach:** Expressed in terms of visibility and/or RVR, minimum descent altitude/height (MDA/MDH), and, if necessary, cloud base height.
- **For landing with a precision approach:** Expressed in terms of visibility and/or RVR, and decision altitude/height (DA/DH), as appropriate to the category of operation.

Take-off minima

Take-off minima indicate the minimum visibility or Runway Visual Range (RVR) conditions under which a pilot can expect to have the necessary external visual reference to maintain directional control on the runway until the aircraft becomes airborne or until the completion of an accelerate-stop maneuver.

Take-off minima generally consider factors such as terrain and obstacles, aircraft maneuverability and performance, available visual aids, runway characteristics, available navigation and guidance systems, and adverse weather conditions.

The cloud base does not need to be considered when obstacles can be avoided by applying appropriate procedures, such as specified climb gradients or departure routes.

Take-off minima should not be confused with required meteorological departure minima. The meteorological minima for initiating a flight from a given aerodrome should not be lower than the landing minima for that aerodrome unless a suitable take-off alternate aerodrome is available.

The weather conditions and available facilities at the take-off alternate aerodrome should allow for a safe landing. Additionally, the aircraft must be capable of climbing to an altitude that ensures adequate obstacle clearance, allows reception of en-route signals, and can maintain that altitude until reaching a suitable take-off alternate aerodrome. This aerodrome should be located:

- a) For a twin-engine aircraft, at a distance not exceeding one hour of flight at the one-engine-inoperative cruising speed.
- b) For an aircraft with three or more engines, at a distance not exceeding two hours of flight at the one-engine-inoperative cruising speed.

The take-off minima established by the operator must be expressed in RVR/visibility values, not lower than those specified in the following table:

TAKE-OFF MINIMA	
FACILITIES	RVR/VISIBILITY
RUNWAY EDGE LIGHTS, CENTERLINE LIGHTS, CENTERLINE MARKINGS, AND RVR MEASURED AT TOUCHDOWN, MIDPOINT, AND STOP END.	175 m
RUNWAY EDGE LIGHTS, PLUS EITHER CENTERLINE LIGHTS OR CENTERLINE MARKINGS.	500 m

APPROACH AND LANDING MINIMA

NON-PRECISION APPROACH

Non-precision approach procedures rely on the use of an ILS without a glide path (LLZ only), VOR, NDB, etc.

The following table provides the minimum values associated with the system for non-precision approach procedures:

SYSTEM MINIMA	
FACILITIES	LOWEST MDH (FT)
ILS-GP/HS	250
VOR	300
VOR/DME	250
NDB	300

MINIMUM HEIGHT FOR NON-PRECISION APPROACH

The height component of the non-precision approach minima is the Minimum Descent Altitude/Height (MDA/MDH).

MDA/MDH is the altitude/height below which an aircraft must not descend unless the threshold, touchdown zone lights or markings, or an approach lighting system identifying the runway are in sight, and the aircraft is in a position to make a normal visual descent for landing.

The MDA/MDH may be higher but must never be lower than the Obstacle Clearance Altitude/Height (OCA/OCH).

For circling approaches, the minima are generally higher than those established for other types of non-precision approaches.

MINIMUM VISIBILITY FOR NON-PRECISION APPROACH

The minimum visibility required for the pilot to acquire visual reference in order to safely descend from the Minimum Descent Altitude/Height (MDA/MDH) and maneuver for landing depends on the aircraft category, the MDA/MDH, the available facilities, and the type of non-precision approach being conducted (straight-in or circling).

Based on these criteria, visibility minima range between 800 m and 5000 m.

Minimum required visibility is generally lower in the following cases:

- Aircraft with lower approach speeds.
- Lower range of MDA/MDH.
- Higher quality visual aids.

The minimum visibility associated with MDH can be determined from the table below when MDH is 100 m or more.

RVR FOR A NON-PRECISION APPROACH WITH ASSOCIATED MINIMUM VISIBILITY AND MINIMUM DESCENT HEIGHT				
MDH (FT)	VISIBILITY OR RVR (M)			
	A	B	C	D
320-390	1600	1600	1600	2000
391-460	1600	1600	2000	2400
461-530	1600	1600	2000	2800
531-600	1600	1600	2400	2800
601-670	1600	1600	2800	3200
671-740	1600	1600	3200	3600
741-810	1600	2000	3600	4000
811-880	1600	2000	4000	4400

REQUIRED RVR

The lowest minima that an operator may use for non-precision approaches are:

- For a fully equipped installation, including a Category I precision approach lighting system, runway edge lights, threshold lights, runway end lights, and runway markings.

The lights must be operational.

RVR CORRESPONDING TO NON-PRECISION APPROACHES -FULLY EQUIPPED INSTALLATION				
VISIBILITY OR RVR (M)				
AIRCRAFT CATEGORY	A	B	C	D
FULLY EQUIPPED INSTALLATION	800	800	800	1600

- For an intermediate installation, which includes a simplified high-intensity approach lighting system, runway edge lights, threshold lights, runway end lights, and runway markings.

The lights must be operational.

RVR CORRESPONDING TO NON-PRECISION APPROACHES -INTERMEDIATE INSTALLATION				
VISIBILITY OR RVR (M)				
AIRCRAFT CATEGORY	A	B	C	D
INTERMEDIATE INSTALLATION	1200	1200	1200	1600

- For a basic installation, which includes a simplified low-intensity approach lighting system, runway edge lights, threshold lights, runway end lights, and runway markings, or an installation without approach lights, or with approach lights that do not meet the specifications of a simplified system.

The lights must be operational.

RVR CORRESPONDING TO NON-PRECISION APPROACHES -BASIC INSTALLATION				
VISIBILITY OR RVR (M)				
AIRCRAFT CATEGORY	A	B	C	D
BASIC INSTALLATION	1600	1600	1600	1600

PRECISION APPROACH

An instrument approach providing both vertical and lateral guidance using an **ILS/GP system**.

CATEGORY I PRECISION APPROACH

A Category I precision approach is an instrument approach followed by a landing with a decision height of at least 60 m (200 ft), a visibility of at least 800 m, and a runway visual range (RVR) of at least 550m.

The operator must ensure that the height used for a Category I precision approach is not lower than the minimum decision height (200 ft).

The pilot is not permitted to continue an approach below the Category I Decision Height unless the following visual aids related to the intended runway, or the runway itself, or both, are visible and identifiable:

- Runway threshold lights or markings,
- Touchdown zone lights,
- Approach lighting system.

The lowest minima that an operator may use for Category I operations are as follows:

RVR FOR A CATEGORY I APPROACH WITH ASSOCIATED INSTALLATION AND DECISION HEIGHT			
DECISION HEIGHT (DH) (FT)	FACILITIES RVR (M)		
	COMPLETE	INTERMEDIATE	BASIC
200 FT	550	800	1200

CATEGORY II PRECISION APPROACH

A Category II precision approach is an instrument approach followed by a landing, characterized by:

- A decision height between 100 ft and 200 ft
- A runway visual range (RVR) of no less than 350 m

The operator must ensure that the decision height for a Category II operation is not lower than:

- 100 ft
- The decision height at which the flight crew is authorized to operate

The pilot is not permitted to continue an approach below the Category II decision height unless the following visual aids related to the intended runway, the runway itself, or both, are visible and identifiable:

- Runway threshold lights or markings
- Touchdown zone lights
- Approach lighting system.

The lowest minima to be used by the operator for Category II operations are as follows:

RVR CORRESPONDING TO A CATEGORY II APPROACH AND ASSOCIATED DH	
DECISION HEIGHT DH (FT)	RVR (M)
100 FT	350 M
150FT	500 M

CATEGORY III PRECISION APPROACH

Category III operations are subdivided as follows:

CATEGORY III.A OPERATION

This is an instrument precision approach followed by a landing, characterized by:

- A decision height of 50 ft or less; and
- An RVR between 200 m and 300 m.

The pilot is not authorized to continue an approach below the Category III.A decision height unless the following visual references are visible and identifiable:

- Touchdown zone markings; or
- Touchdown zone lights.

CATEGORY III.B OPERATION

This is an instrument precision approach followed by a landing, characterized by:

- A decision height below 50 ft; and
- An RVR of 100 m.

In this case, the pilot is not authorized to continue an approach below the Category III.B decision height unless the following visual references are visible and identifiable:

- Touchdown zone markings; or
- Touchdown zone lights.

RVR CORRESPONDING TO A CATEGORIE III APPROACH AND ASSOCIATED DH				
APPROACH CATEGORY	DECISION HEIGHT (FT)	PILOTAGE CONTROL SYSTEM RVR		
		PASSIVE AFTER FAILURE	OPERATIONAL AFTER FAILURE	
III.A	DH ≤50	200 < RVR < 300	300	
III.B	DH <50	100		

VISUAL MANOEUVRE

The lowest minima to be used by the operator for visual manoeuvres are as follows:

VISIBILITY AND MDH FOR A VISUAL MANEUVER AND AIRCRAFT CATEGORY				
AIRCRAFT CATEGORY				
	A	B	C	D
MHD (FT)	400	500	600	700
MINIMUM WEATHER VISIBILITY (M)	1600	1600	2400	3600

VISUAL APPROACH

An operator must not use an RVR lower than 800 m for a visual approach.