Precision

VS.

Non Precision

APPROACHES

Types of Approaches

Precision Approach (PA). An instrument approach based on a navigation system that provides course and glidepath deviation information meeting the precision standards of ICAO Annex 10. For example, PAR, ILS, and GLS are precision approaches.

Approach with Vertical Guidance (APV). An instrument approach based on a navigation system that is not required to meet the precision approach standards of ICAO Annex 10 but provides course and glidepath deviation information. For example, Baro-VNAV, LDA with glidepath, LNAV/VNAV and LPV are APV approaches.

Nonprecision Approach (NPA). An instrument approach based on a navigation system which provides course deviation information, but no glidepath deviation information. For example, VOR, NDB and LNAV. As noted in subparagraph k, Vertical Descent Angle (VDA) on Nonprecision Approaches, some approach procedures may provide a Vertical Descent Angle as an aid in flying a stabilized approach, without requiring its use in order to fly the procedure. This does not make the approach an APV procedure, since it must still be flown to an MDA and has not been evaluated with a glidepath.

--AIM 5-4-5

Non-Precision Approaches

Non-precision approach:

1. No vertical guidance
2. Includes VOR, NDB and LNAV
3. Uses an MDA / MDH

Area Navigation (RNAV) approaches use the Global Navigation Satellite System (GNSS), or GPS. RNAV approaches are becoming more common due to the wide use of GPS. An aircraft must be equipped with the appropriate Wide Area Augmentation System (WAAS) GPS receiver to conduct the RNAV approach. RNAV approaches vary on capabilities. For example: LNAV (lateral navigation); LNAV +V (lateral navigation with advisory glide slope); LNAV/VNAV (lateral/vertical navigation). Some RNAV approaches will also have LPV (localizer performance with vertical guidance) known as APV approaches.

Localizer Performance (LP) approaches are non-precision approaches with WAAS lateral guidance. Vertical guidance to the runway is not provided. Furthermore, the LP approaches are located where terrain or obstructions do not allow a vertically guided procedure. In order to conduct an LP approach, the aircraft must be equipped with the appropriate Wide Area Augmentation System (WAAS) GPS receiver.

Very-High Frequency Omnidirectional Range (VOR) approaches use a ground-based signal transmitting an omni-directional radial. VOR signals are line of sight due to terrain blocking. Also, the VOR radials have a range limit, depending on the type of VOR ground device. The U.S. has been decommissioning many VORs. However, pilots must retain skills on flying a VOR approach, because many countries still use VOR.

Non-Directional Beacon (NDB) approach is a ground-based, low frequency radio transmitter. The NDB transmits an omni-directional signal received by an Automatic Direction Finder instrument onboard the aircraft. NDBs are being phased out of air navigation in the U.S. with a few remaining. Although there are fewer NDB approaches worldwide than VORs, pilots should maintain their NDB approach skills.

Localizer (LOC) approaches utilize only the localizer equipment of the instrument landing system (ILS) and not vertical guidance to the runway. Aircraft must be equipped with a navigation receiver. ILS and localizer signals share the same ground-based equipment.

Approach Surveillance Radar (ASR) approaches are similar to the PAR. However, they don't provide vertical guidance. As a result, when conducting an ASR approach, ATC guides the pilot laterally giving heading assignments or corrections.

Localizer Type Directional Approach (LDA) is used where the approach is offset from the runway 6-12 degrees. The LDA uses the ground-based transmitter from an ILS but not a complete ILS signal. In order to fly the LDA approach, the aircraft must be equipped with a navigation receiver.

Simplified Directional Facility (SDF) approaches are similar to the ILS localizer. Aircraft must be equipped with a navigation receiver to fly this approach. Above all, the course may not be aligned with the runway and may be wider. As a result, there may be less precision.

Precision Approaches

- HAS VERTICAL GUIDANCE
- MEETS THE APPROACH STANDARDS OF ICAO ANNEX 10
- INCLUDES ILS, PAR AND GLS
- USES A DA / DH

PRECISION APPROACH PROCEDURE- A standard instrument approach procedure in which an electronic glideslope or other type of glidepath is provided; e.g., ILS, PAR, and GLS.

The Instrument Landing System (ILS) is the most commonly available PA in the U.S. The ILS uses both a localizer and a glideslope ground-based signal that are transmitted to the aircraft receiver guiding pilots to the runway. Furthermore, FAR 91.175 explains the requirements for landing, such as flight visibility and approved visual references.

Ground Based Augmentation System (GBAS) Landing System (GLS) approaches provide exact alignment and descent guidance to aircraft. To the pilot, GBAS/LAAS approaches look similar to ILS approaches. LAAS is based on GPS signals that are then supplemented by ground equipment.

Precision Approach Radar (PAR) approaches involve radar and two-way radio communications. The controller provides the pilot headings, altitudes, and necessary corrections to remain on course. The military mostly uses PAR approaches in the United States.

Approaches with Vertical Guidance

1. Has vertical guidance
2. Includes LPV and LNAV/VNAV (WAAS)
3. Uses a DA

Approaches with Vertical Guidance (APV) is based on a navigation system that does not meet the ICAO precision approach standards. APV approaches provide course and glidepath deviation information. Most importantly, aircraft must have a WAAS receiver to fly these approaches. APV approaches are more accurate than RNAV approaches. Therefore, pilots are able to fly lower cloud and visibility minimums.

APV types of approaches include:

- Localizer Performance with Vertical Guidance (LPV)
- LNAV/VNAV.