SESSION 65: RNAV (GPS) APPROACHES — APPROACH MODES AND LINE OF MINIMUMS

1. An RNAV (GPS) approach chart may publish several lines of minima. The line a pilot may use depends on:

A. The runway length only

B. The aircraft's WAAS/equipment capability and the service level available at the time

C. The cruise altitude

D. The departure airport

2. The lines of minima on an RNAV (GPS) approach, from lowest (most capable) to highest, are generally:

A. LPV, LNAV/VNAV, LP/LNAV, circling

B. LNAV, LP, LNAV/VNAV, LPV

C. Circling, LNAV, LPV, LP

D. LP, LPV, LNAV, circling

3. A pilot with a WAAS navigator annunciating "LPV" may use the:

A. LPV line (lowest minima, DA with vertical guidance)

B. Circling line only

C. LNAV line only

D. LP line only

4. A pilot with a non-WAAS IFR GPS is limited to which line(s) of minima?

A. LPV

B. LNAV/VNAV

C. LNAV (and LP where the equipment supports it via the appropriate annunciation)

D. The lowest available regardless

5. Loading the RNAV (GPS) approach, the pilot selects the approach and the:

A. Transition/initial approach fix (IAF) or vectors-to-final, as appropriate

B. Transponder code

C. Departure frequency

D. Cruise altitude

6. A "TAA" (Terminal Arrival Area) is associated with some RNAV approaches and provides:

A. The missed approach

B. The circling minimums

C. The DA

D. Defined sectors around the IAFs with minimum altitudes for the transition to the approach

7. A "basic T" RNAV approach design has IAFs arranged so the aircraft can join the approach from:

A. Only straight ahead

B. The missed approach only

C. Either side (left/right IAF) or straight in at the center IAF, forming a T shape

D. Only a procedure turn

8. When arriving within a TAA sector, the pilot may descend to the:

A. MDA immediately

B. DA

C. Circling altitude

D. Published minimum altitude for that sector

9. A "NoPT" notation on a TAA sector or transition means:

A. The approach is not authorized

B. No procedure turn is allowed and one must be flown anyway

C. The pilot must hold

D. No procedure turn is required (or permitted) when arriving via that route

10. The GPS CDI sensitivity for the final segment of an RNAV approach scales to approximately:

A. ±0.3 NM (or angular for LPV) as the approach mode activates

B. ±5 NM

C. ±2 NM

D. ±10 degrees

11. Before the FAF, the pilot must confirm the navigator has:

A. Lost RAIM

B. Transitioned to the approach mode with the correct annunciation and sensitivity

C. Reverted to en route

D. Increased to ±5 NM

12. If the navigator annunciates a line of minima lower than the aircraft is equipped/authorized for, the pilot must:

A. Use the lowest line regardless

B. Descend below the MDA

C. Circle

D. Use only the minima the aircraft is equipped and the service supports, not a lower line it cannot legally fly

13. The "LP" (Localizer Performance) line is used when:

A. WAAS vertical guidance is available for an LPV

B. The aircraft is non-WAAS

C. Only the LNAV line is published

D. WAAS lateral (angular) guidance is available but no vertical guidance is published for that runway

14. An "LNAV/VNAV" line provides:

A. Lateral and vertical guidance to a DA (via baro-VNAV or WAAS), with higher minima than LPV

B. Lateral guidance only

C. A circling-only minimum

D. A precision ILS

15. When the WAAS service downgrades during the approach (e.g., LPV to LNAV), the pilot must:

A. Continue to the LPV DA

B. Descend below the MDA

C. Apply the higher LNAV minimums or execute the missed approach as appropriate

D. Circle

16. A pilot briefing an RNAV (GPS) approach should determine in advance:

A. Only the missed approach

B. Only the frequencies

C. Which line of minima is expected, based on equipment and predicted service, and the backup line

D. Only the cruise altitude

17. The "vectors-to-final" option when loading the approach:

A. Loads the missed approach only

B. Sets up the navigator to join the final approach course when ATC provides radar vectors, rather than via an IAF

C. Disables the approach

D. Requires a procedure turn

18. A current navigation database is required for an RNAV (GPS) approach because:

A. The coded approach path, waypoints, and glidepath come from the database

B. The receiver will not power on otherwise

C. WAAS needs a daily update

D. The autopilot depends on the date

19. A "T" or basic-T design reduces the need for a:

A. Missed approach

B. Procedure turn/course reversal, since the IAFs allow direct entry from multiple directions

C. Current database

D. Glideslope

20. A pilot determining the usable minima must cross-check the chart minima lines against:

A. The cruise fuel

B. The departure weather

C. The aircraft's equipment, the navigator's annunciation, and the available service

D. The alternate airport

21. When the navigator annunciates "LNAV+V" on an LNAV approach, the pilot:

A. May use the LPV DA

B. Flies the advisory glidepath but uses the LNAV MDA as the controlling minimum

C. Has a precision approach

D. Descends to a DA

22. The fundamental reason multiple lines of minima exist on one RNAV chart is to:

A. Allow aircraft of varying equipage and the prevailing service level to fly the approach to the lowest minima they qualify for

B. Confuse the pilot

C. Replace the ILS

D. Eliminate the missed approach

23. A pilot arriving via a TAA sector that requires a course reversal at the IAF would:

A. Skip the reversal

B. Descend to the DA

C. Fly straight in regardless

D. Fly the published hold-in-lieu/procedure turn unless NoPT applies

24. Confirming the correct approach and runway is loaded prevents:

A. A RAIM alert

B. Loading or flying the wrong procedure, which the verification step is designed to catch

C. A glideslope capture

D. A reverse-sensing error

25. The fundamental principle of RNAV (GPS) approach modes and minimums is that the pilot must:

A. Always use the lowest line

B. Load and verify the approach, confirm the navigator's mode/annunciation and the aircraft's qualification, and fly to the appropriate line of minima, responding to any downgrade

C. Disregard the annunciations

D. Treat every RNAV approach as an LPV

ANSWER KEY & EXPLANATIONS — SESSION 65

1. B. Equipment + service — The usable line of minima depends on the aircraft's WAAS/equipment capability and the service level available at the time.

2. A. LPV/LNAV-VNAV/LP-LNAV/circling — From lowest/most capable to highest, the lines run LPV, LNAV/VNAV, LP/LNAV, circling.

3. A. LPV line — With "LPV" annunciated, the pilot may use the LPV line (lowest minima, DA with vertical guidance).

4. C. LNAV (and LP) — A non-WAAS IFR GPS is limited to the LNAV (and LP where supported via the appropriate annunciation) line.

5. A. Transition/IAF or vectors — Loading the approach, the pilot selects the approach and the transition/IAF or vectors-to-final, as appropriate.

6. D. Sectors with min altitudes — A TAA provides defined sectors around the IAFs with minimum altitudes for the transition to the approach.

7. C. T shape — A basic-T design arranges IAFs so the aircraft can join from either side or straight in at the center IAF, forming a T.

8. D. Sector minimum — Within a TAA sector, the pilot may descend to the published minimum altitude for that sector.

9. D. No PT required — "NoPT" means no procedure turn is required (or permitted) when arriving via that route.

10. A. ±0.3 NM/angular — The final-segment CDI sensitivity scales to approximately ±0.3 NM (or angular for LPV) as the approach mode activates.

11. B. Approach mode active — Before the FAF, the pilot confirms the navigator has transitioned to the approach mode with the correct annunciation and sensitivity.

12. D. Only equipped minima — The pilot must use only the minima the aircraft is equipped and the service supports, not a lower line it cannot legally fly.

13. D. WAAS lateral, no vertical — The LP line is used when WAAS lateral (angular) guidance is available but no vertical guidance is published for that runway.

14. A. Lateral + vertical to DA — LNAV/VNAV provides lateral and vertical guidance to a DA, with higher minima than LPV.

15. C. Higher minima or miss — When WAAS downgrades (LPV to LNAV), the pilot applies the higher LNAV minimums or executes the missed approach as appropriate.

16. C. Expected line + backup — Briefing an RNAV approach includes determining which line of minima is expected, based on equipment and predicted service, and the backup line.

17. B. Join via vectors — Vectors-to-final sets up the navigator to join the final approach course via radar vectors, rather than via an IAF.

18. A. Path from database — A current database is required because the coded approach path, waypoints, and glidepath come from the database.

19. B. Reduce procedure turn — A basic-T design reduces the need for a procedure turn/course reversal, since the IAFs allow direct entry from multiple directions.

20. C. Equipment/annunciation/service — The usable minima are cross-checked against the aircraft's equipment, the navigator's annunciation, and the available service.

21. B. Advisory +V, LNAV MDA — With "LNAV+V," the pilot flies the advisory glidepath but uses the LNAV MDA as the controlling minimum.

22. A. Match equipage/service — Multiple lines of minima exist so aircraft of varying equipage and the prevailing service level can fly the approach to the lowest minima they qualify for.

23. D. Fly the reversal unless NoPT — Arriving via a TAA sector requiring a course reversal, the pilot flies the published hold-in-lieu/procedure turn unless NoPT applies.

24. B. Catch wrong procedure — Confirming the correct approach/runway is loaded prevents loading or flying the wrong procedure, which the verification step catches.

25. B. Load/verify/fly/respond — The fundamental principle is to load and verify the approach, confirm the navigator's mode/annunciation and the aircraft's qualification, and fly to the appropriate line of minima, responding to any downgrade.