

SESSION 28: PREFLIGHT PROCEDURES — INSTRUMENT FLIGHT DECK CHECK AND AIRWORTHINESS

Scenario thread: You are conducting the preflight and flight deck check of N52DK, a glass-cockpit single (PFD/MFD, WAAS GPS, no MEL), before an IFR departure into a low overcast. The DPE works the scenario from airworthiness records through the flight deck check.

1. The DPE first asks you to confirm the aircraft is legal for IFR. GRABCARD verifies compliance with:

- A. The §91.205(d) instrument-flight equipment list
- B. The weight and balance limits
- C. The alternate airport requirement
- D. The fuel reserve requirement

2. You check the inspection records using AVIATE. Which inspection, required specifically for IFR, must be within the preceding 30 days?

- A. The annual inspection
- B. The VOR equipment check
- C. The transponder inspection
- D. The altimeter/static system inspection

3. The altimeter and static system inspection for IFR must have been accomplished within the preceding:

- A. 12 calendar months

- B. 6 calendar months
- C. 30 days
- D. 24 calendar months

4. You find the aircraft's autopilot is inoperative and there is no MEL. The autopilot is not required by §91.205(d). Under §91.213(d), you may:

- A. Not fly the aircraft at all until repaired
- B. Deactivate/placard it "INOPERATIVE," confirm no hazard, and proceed
- C. Defer it only after notifying the FSDO
- D. Fly only VFR for the day

5. The DPE asks which instruments would be lost if the vacuum pump failed in flight. Your answer:

- A. The airspeed indicator and altimeter
- B. The turn coordinator and magnetic compass
- C. The attitude indicator and heading indicator (if vacuum-driven)
- D. The VSI and tachometer

6. N52DK has a glass PFD with an AHRS, so its attitude and heading come from the AHRS rather than vacuum gyros. A failure of the AHRS would:

- A. Remove primary attitude/heading from the PFD, requiring the standby instruments
- B. Affect only the MFD moving map
- C. Disable the transponder only
- D. Have no effect on displayed flight information

7. During the flight deck check you test the pitot heat. You activate it:

- A. Before entering visible moisture near freezing, as a preventive measure
- B. Only after the airspeed indication becomes erratic
- C. Only when ice appears on the windscreen
- D. Only during the landing flare

8. You verify the standby instruments. They are required in a glass cockpit because:

- A. The PFD is less reliable than steam gauges
- B. The MFD cannot display a map
- C. A display, ADC, or AHRS failure could remove primary flight information
- D. The autopilot depends on them

9. Checking the static system, you note a blocked static port would cause the altimeter to:

- A. Read increasingly high in a climb
- B. Drop immediately to zero
- C. Read accurately throughout
- D. Freeze at the altitude where the blockage occurred

10. If a static blockage occurred and no alternate static source were installed, the emergency technique would be to:

- A. Open the cabin door in flight
- B. Break the glass face of the VSI to expose the static line to cabin pressure
- C. Increase airspeed to force air in
- D. Turn off the pitot heat

11. You confirm the WAAS GPS database is current. A current database matters because:

- A. The receiver will not power on with an old database
- B. Outdated waypoints, procedures, or frequencies could provide incorrect navigation
- C. WAAS requires a daily update
- D. The autopilot depends on the revision date

12. Because N52DK has WAAS, it can fly which approach a non-WAAS GPS cannot?

- A. LNAV
- B. VOR
- C. Localizer
- D. LPV with vertical guidance to a DA

13. The DPE asks how you'd verify GPS integrity for an approach in a non-WAAS aircraft. The answer involves:

- A. Tuning the DME
- B. Engaging the autopilot
- C. Confirming RAIM is available/annunciated for the approach
- D. Checking the marker beacons

14. Verifying ADS-B Out is operative matters because it is required to operate in:

- A. Class G airspace only
- B. Only above FL600
- C. Only at non-towered fields
- D. Generally the airspace that required a Mode C transponder (Class A, B, C, and specified areas)

15. During the flight deck check you identify the VOR by its Morse code identifier to confirm:

- A. The aircraft's distance from the station
- B. The glideslope is operational
- C. The transponder is functioning
- D. You are receiving the correct, operational station

16. A "red X" appears through the airspeed field on the PFD during your check. This indicates:

- A. The airspeed information is highlighted for emphasis
- B. The autopilot is engaged
- C. That data source has failed and the information is invalid
- D. The aircraft is on the glideslope

17. You plan to use the EFB for approach charts. The DPE asks about backup. The correct practice is to:

- A. Rely on the EFB as the sole navigation source
- B. Disable the certified avionics
- C. Use it without any backup plan
- D. Carry a backup (paper or a second device) in case the EFB fails

18. The forecast shows possible icing in the overcast. N52DK is not FIKI. The DPE asks your plan. The sound conclusion is:

- A. Any icing is acceptable if pitot heat is on
- B. Light icing is manageable for the flight
- C. Increasing airspeed will shed any ice
- D. Any icing is an emergency requiring immediate exit; plan to avoid the icing band or not depart

19. You discover the transponder inspection lapsed 26 months ago. The aircraft:

- A. May be used for IFR but not VFR
- B. May not be used in airspace requiring a transponder until inspected
- C. May be used above FL240 only
- D. May be used without restriction

20. The DPE asks you to walk through the §91.213(d) logic for an inoperative non-required item. The correct sequence is:

- A. Ground the aircraft regardless of the item
- B. Continue flight with no action
- C. Confirm it is not required by the TC, §91.205, an AD, or the KOEL; then deactivate/placard or defer, ensuring no hazard
- D. Obtain a special flight permit for every inoperative item

21. The KOEL is relevant to your check because an item not on the §91.205 list might still be:

- A. Required by the aircraft's type design for the specific kind of operation (e.g., IFR night)
- B. Optional under all conditions
- C. Removable without documentation
- D. Relevant only to weight and balance

22. You find the turn coordinator inoperative. For this IFR flight, the aircraft is:

- A. Not airworthy for IFR; the turn coordinator is required by §91.205(d)
- B. Legal if the attitude indicator works
- C. Legal because it is optional for IFR
- D. Legal for 30 days under pilot deferral

23. Setting up the PFD, you note airspeed and altitude are displayed as:

- A. Round analog dials in the center of the display
- B. Vertical tapes — airspeed on the left, altitude on the right
- C. Digital readouts on the MFD only
- D. Part of the moving map

24. The DPE asks what ties the entire flight deck check together. The best answer:

- A. Confirming the aircraft is airworthy and properly equipped for this specific IFR operation
- B. Determining the required fuel reserve
- C. Selecting the enroute cruising altitude
- D. Establishing the alternate minimums

25. Summarizing Area II, the DPE asks the single governing question of preflight procedures. It is:

- A. What is the aircraft's resale value?
- B. How much fuel is required?
- C. Is the aircraft airworthy, properly equipped, and ready for this specific IFR flight, with every inoperative item correctly resolved?
- D. What is the destination forecast?

ANSWER KEY & EXPLANATIONS – SESSION 28

1. A. §91.205(d) list — GRABCARD verifies compliance with the §91.205(d) instrument-flight equipment list.
2. B. VOR check — The VOR equipment check, required for IFR, must be within the preceding 30 days.

3. D. 24 months — The altimeter and static system inspection for IFR must be within the preceding 24 calendar months.
4. B. Deactivate/placard/proceed — Without an MEL, a non-required inoperative autopilot may be deactivated/placarded, confirmed no hazard, and the flight may proceed.
5. C. AI and HI — A vacuum pump failure removes the attitude indicator and heading indicator (if vacuum-driven).
6. A. Removes PFD attitude/heading — An AHRS failure removes primary attitude/heading from the PFD, requiring the standby instruments.
7. A. Before visible moisture — Pitot heat is activated before entering visible moisture near freezing, as a preventive measure.
8. C. Backup for failure — Standby instruments are required because a display, ADC, or AHRS failure could remove primary flight information.
9. D. Freezes — A blocked static port causes the altimeter to freeze at the blockage altitude.
10. B. Break VSI face — With no alternate static source, breaking the VSI face exposes the static line to cabin pressure.
11. B. Outdated data risk — A current database matters because outdated waypoints, procedures, or frequencies could provide incorrect navigation.
12. D. LPV — With WAAS, N52DK can fly LPV with vertical guidance to a DA, which a non-WAAS GPS cannot.
13. C. RAIM available — GPS integrity for a non-WAAS approach is verified by confirming RAIM is available/annunciated.

14. D. Mode C airspace — ADS-B Out is required generally in the airspace that required a Mode C transponder (Class A, B, C, and specified areas).

15. D. Correct station — Identifying the Morse code confirms you are receiving the correct, operational station.

16. C. Source failed — A red X through the airspeed field indicates that data source has failed and the information is invalid.

17. D. Carry a backup — When using an EFB for charts, the correct practice is to carry a backup (paper or a second device).

18. D. Any icing = emergency — In a non-FIKI aircraft, any icing is an emergency requiring immediate exit; plan to avoid the icing band or not depart.

19. B. Not in transponder airspace — A transponder lapsed beyond 24 months may not be used in airspace requiring a transponder until inspected.

20. C. §91.213(d) sequence — Confirm the item is not required by the TC, §91.205, an AD, or the KOEL; then deactivate/placard or defer, ensuring no hazard.

21. A. Required by type design — An item not on §91.205 might still be required by the aircraft's type design for the specific kind of operation per the KOEL.

22. A. Not airworthy for IFR — An inoperative turn coordinator is required by §91.205(d); the aircraft is not airworthy for IFR.

23. B. Vertical tapes — On the PFD, airspeed is a vertical tape on the left and altitude a vertical tape on the right.

24. A. Airworthy/equipped — The flight deck check ties together confirming the aircraft is airworthy and properly equipped for this specific IFR operation.

25. C. Ready for this flight — The governing question of preflight procedures is whether the aircraft is airworthy, properly equipped, and ready for this specific IFR flight, with every inoperative item correctly resolved.