

## FMFA GFC500 Autopilot Test (eff 03/19/2025)

Pilot \_\_\_\_\_ Date \_\_\_\_\_ Corrected by \_\_\_\_\_

Complete this open book test using the FAR/AIM/POH/GFC500 Manual/FMFA documents, as appropriate. Assume you are operating an FMFA aircraft. Unless stated otherwise, the question and answer refer to the Archer II. Your flight instructor will grade the test. Minimum passing score is 80%. The completed test will be filed in the pilot's file and the date will be entered into the FMFA scheduling and dispatch system.

1. The GFC500 consists of which component(s)
  - a. Flight Director & Autopilot
  - b. Flight Director
  - c. Autopilot
2. What is the proper way to engage the automation:
  - a. Select a lateral mode, select a vertical mode, hand-fly the flight director to ensure desired performance, press the AP key to engage autopilot
  - b. Press the AP key, select a lateral mode, select a vertical mode
  - c. Press the AP key, allow the aircraft to settle
3. The default lateral and vertical modes are
  - a. ROL, PIT
  - b. HDG, ALT
  - c. GPS, ALT
  - d. ROL, VS
4. If the aircraft is at 3,000ft with 4,000ft set in the altitude window and a vertical speed of -500fpm is engaged in the vertical mode what will happen?
  - a. The flight director will not command a descent because the altitude is set above
  - b. The flight director will command a descent until impacting terrain
  - c. The flight director will flash red to indicate an error
  - d. The flight director will command a level off at a safe altitude
5. With the flight director in the HDG mode, pressing the HDG key will result in:
  - a. Lateral mode remains in HDG
  - b. Lateral mode disappears
  - c. Lateral mode changes to ROL
  - d. Lateral mode changes to GPS
6. A lateral or vertical mode displayed in white indicates that the mode is
  - a. Active
  - b. Armed
  - c. Off
  - d. Standby
7. The flight director is in HDG and VS+500 modes and the aircraft is approaching the selected altitude, what vertical mode will become active next?
  - a. ALT
  - b. ALTS
  - c. VS 000
  - d. PIT
8. The NAV key is pressed with a magenta CDI, which lateral mode appears?
  - a. HDG
  - b. NAV
  - c. GPS
  - d. VOR
9. The NAV key is pressed with a green CDI which lateral mode appears?
  - a. HDG
  - b. NAV
  - c. GPS
  - d. VOR
10. While navigating using the GPS with a magenta CDI the NAV key is pressed, a white GPS appears in the lateral mode. What does this indicate?
  - a. The flight director is following the GPS path
  - b. There is an error with the GPS signal
  - c. The aircraft is not within the capture criteria of the current GPS course
  - d. The NAV key needs to be pressed again in order to follow the GPS course

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11. While flying at 5,500ft in straight, level, unaccelerated flight in GPS and ALT modes with the Autopilot Engaged, the pilot selects an altitude of 3,500 then presses the IAS key to initiate a descent. What happens?
  - a. The aircraft begins a descent to 3,500 at the current airspeed
  - b. Nothing
  - c. The aircraft begins a steep descent to 3,500
  - d. The aircraft begins to climb
  
12. In turbulent conditions entering PIT mode could result in an insidious descent if the attitude of the aircraft was nose down at the time PIT mode was entered
  - a. True
  - b. False
  
13. Pressing the ALT key will result in which vertical mode? (Select all the apply)
  - a. ALT – Holding the selected altitude
  - b. ALT – Holding the altitude the aircraft was at when ALT was pressed
  - c. PIT – If the flight director was already in ALT mode
  - d. No mode – If the flight director was already in ALT mode
  
14. While in a steep climb, pressing the ALT key will result in:
  - a. A level off
  - b. Nothing
  - c. A descent back down to the altitude that existed at the time ALT was pressed

### INSTRUMENT PILOT QUESTIONS

15. With a NAV1 frequency of 109.35 tuned and the CDI selected on NAV (Green). Pressing the APR key will produce which lateral mode?
  - a. VOR b. LOC c. GPS d. HDG
  
16. With a NAV1 frequency of 117.9 tuned with the CDI selected on NAV (Green), pressing the APR key will produce which lateral mode?
  - a. VOR b. LOC c. GPS d. HDG
  
17. On a GPS approach with LNAV+V vertical guidance, pressing the APR key with a magenta CDI will produce which lateral and vertical modes?
  - a. HDG, ALT b. GPS, GS c. GPS, GP d. GPS, LNAV+V
  
18. The aircraft is at 1,500ft descending on an RNAV approach with GPS and GP modes active. The pilot has the circling minimums of 800ft selected in the altitude window. What will happen when the aircraft reaches 800ft?
  - a. The flight director will enter ALT mode and hold 800ft for the circle
  - b. The flight director will remain in GP mode and descend below 800ft
  - c. The flight director will momentarily level at 800ft then continue descending