

PRIVATE PILOT

IX. AREA OF OPERATION: BASIC INSTRUMENT MANEUVERS

E. TASK: RECOVERY FROM UNUSUAL FLIGHT ATTITUDES

OBJECTIVE

To determine that the applicant:

1. Exhibits knowledge of the elements related to attitude instrument flying during unusual attitudes.
2. Recognizes unusual flight attitudes solely by reference to instruments, recovers promptly to a stabilized level flight attitude using proper instrument cross-check and interpretation and smooth, coordinated control application in the correct sequence.

ELEMENTS

1. Unusual attitudes (out-of-the-ordinary pitch and/or bank angles) can result from:
 - a. Turbulence.
 - b. Disorientation.
 - c. Instrument failure.
 - d. Confusion.
 - e. Preoccupation with cockpit duties.
 - f. Carelessness in cross-checking.
 - g. Errors in instrument interpretation.
 - h. Lack of proficiency in aircraft control.
2. An untrained response to an unexpected unusual attitude can be hazardous.
3. The goal when an unusual attitude is noticed is to:
 - a. Recognize what the airplane is doing (climbing, descending, banking, etc.).
 - b. Determine how to return to straight-and-level flight as quickly and safely as possible.
4. Recognizing unusual attitudes:
 - a. Any instrument rate of movement or indication other than those for normal instrument flying should prompt a cross-check to identify an unusual attitude.
 - b. Nose-high attitudes are shown directly by the AI (miniature airplane above the artificial horizon) and indirectly by the altimeter (winding up), VSI (positive) and ASI (winding down).
 - c. Nose-low attitudes are shown directly by the AI (miniature airplane below the artificial horizon) and indirectly by the altimeter (winding down), VSI (negative) and ASI (winding up).
5. Recovery from unusual attitudes:
 - a. Use the recommended recovery procedure in the POH / AFM.
 - b. If no recommended procedures are stated, recovery should be based on indications from the ASI, altimeter, VSI and TC.
 - c. For nose-high attitudes:
 - i. Increase power.
 - ii. Lower the nose by applying forward elevator pressure to prevent a stall.
 - iii. Correct the bank by applying coordinated aileron and rudder pressure.
 - d. For nose-low attitudes:
 - i. Reduce power.
 - ii. Correct the bank by applying coordinated aileron and rudder pressure.
 - iii. Raise the nose by applying smooth back elevator pressure.
 - e. After initial control has been applied, conduct a fast cross-check for possible overcontrolling.
 - f. As the rate of movement of altimeter and ASI needles decreases, the attitude is approaching level flight.
 - g. When the altimeter and ASI needles stop and reverse direction, the aircraft is passing through level flight.
 - h. As the indications from the ASI, altimeter and TC stabilize, incorporate the AI into the cross-check.

PRIVATE PILOT

IX. AREA OF OPERATION: BASIC INSTRUMENT MANEUVERS

E. TASK: RECOVERY FROM UNUSUAL FLIGHT ATTITUDES

COMMON ERRORS

- a. Failure to recognize an unusual flight attitude.
- b. Failure to keep the airplane properly trimmed. A cockpit interruption while holding pressures can easily lead to inadvertent entry into unusual attitudes.
- c. Disorganized cockpit. Hunting for charts, logs, computers, etc., can seriously detract attention from the instruments.
- d. Slow cross-check and fixations. The impulse is to stop and stare when noting an instrument discrepancy unless enough training has taken place to develop the skill required for immediate recognition.
- e. Attempting to recover by sensory sensations other than sight (not trusting instruments).
- f. Failure to practice basic instrument skills once you have learned them. All of the errors connected with basic instrument skills are aggravated during unusual attitude recoveries until the elementary skills have been mastered.
- g. Inappropriate control applications during recovery.
- h. Failure to recognize from instrument indications when the airplane is passing through a level flight attitude.

REFERENCES

1. FAA-H-8083-3A, Airplane Flying Handbook, Chapter 3.
2. FAA-H-8083-15, Instrument Flying Handbook, Chapter 5.