IX.B. Loss of Gyro Attitude and Heading Indications

References: 14 CFR part 91; FAA-H-8083-9; FAA-H-8083-15; AIM

Objectives  The student should develop knowledge of the elements related to partial panel flying.

Key Elements  1. Notify ATC
2. Get VFR, if possible
3. Ignore the failed instruments

Elements  1. General
2. Recognition of Inaccurate/Inoperative Gyro Instruments
3. Notification of ATC
4. Transition from Full to Partial Panel Condition

Schedule  1. Discuss Objectives
2. Review material
3. Development
4. Conclusion

Equipment  1. White board and markers
2. References

IP’s Actions  1. Discuss lesson objectives
2. Present Lecture
3. Ask and Answer Questions
4. Assign homework

SP’s Actions  1. Participate in discussion
2. Take notes
3. Ask and respond to questions

Completion Standards  The student can competently handle the airplane without gyro instruments in all phases of an IFR flight.
Introduction:
   Attention
   Interesting fact or attention grabbing story

Overview
   Review Objectives and Elements/Key ideas

What
   A failure in the gyro system could result in a loss of the heading indicator, attitude indicator, and/or turn coordinator.

Why
   A loss of the gyro driven instruments has an effect on the instruments you will use to fly the airplane. The pilot must be able to transition to the remaining instruments to continue the flight and fly an approach to landing.

How:
1. General
   A. One possible cause of instrument failure is a loss of the suction or pressure source
      i. Occasionally these pumps fail, leaving the pilot with inoperative attitude and heading indicators

2. Recognition of Inaccurate/Inoperative Gyro Instruments
   A. Usually identified by a warning indicator or an inconsistency between the AI and the supporting performance instruments
   B. Immediately compare the AT with the TC and VSI
      i. Along with providing pitch and bank information, this compares the static, suction, electric systems
      ii. Identify the failed components and use the remaining functional instrument to maintain control

3. Notification of ATC
   A. Notify ATC and advise of your ability to continue the flight in instrument conditions
      i. Notify ATC of loss of gyro instruments
   B. Continue flight in VFR conditions (to reasonably close airport where repairs can be made)
   C. If IFR, request vectors to VFR conditions
   D. If VFR conditions are unable, choose/execute best available approach with ATC vectors if available

4. Transition from Full to Partial Panel Condition
   A. Importance of timely transition from full to partial panel condition
      i. Failed AI and HI can distract and trick pilot into making improper control inputs leading to disorientation in an unusual attitude
      ii. Ignore failed AI and HI and cover them ASAP
      iii. Go to partial panel scan at once
         a. Wings level with TC (primary for bank), centered ball
         b. Pitch level with ALT (primary for pitch), VSI, ASI
         c. Navigation with MC for heading information
            • Timed turns
            • Compass turns
      iv. With the G1000, the moving map is extremely helpful in maintaining course and orientation

Instructors Notes:
IX.B. Loss of Gyro Attitude and Heading Indications

Common Errors:
- Slow to recognize inaccurate or inoperative gyro instruments
- Failure to notify ATC of situation
- Failure to adequately transition from full to partial panel condition

Conclusion:
Brief review of the main points