
SECTION 7 SPECIAL EMPHASIS ITEMS

1. GENERAL. The following paragraphs are additional areas of consideration when conducting a practical test. Many of these special emphasis items are the result of accident investigation findings and statistical analysis of pilot operational errors.

3. DANGERS ASSOCIATED WITH SIMULATION OF POWER FAILURE IN SINGLE-ENGINE AIRPLANES BY THE INTERRUPTION OF FUEL FLOW. Although not a widespread practice, flight instructors occasionally simulate engine failure in single-engine airplanes by turning the fuel selector valve "off" or by placing the mixture control in the "idle cutoff" position.

A. Accident History. A recent study of fuel starvation accidents showed that most accidents in which simulated engine failure was a factor involved single-engine airplanes. Use of the above procedures can result in an actual emergency depending on factors such as engine wind-milling characteristics, fuel quantity remaining, and fuel selector and mixture control system design.

B. Alternatives. Inspectors should ensure that the subject of simulated engine failure in single-engine airplanes is given special emphasis during appropriate contacts with pilot schools and flight instructors. Alternative means of engine-out simulation should be discussed; for example, retarding the engine throttle control or power/thrust lever.

5. PILOT EXTERNAL VIGILANCE (SCAN PROGRAM). The continuing occurrence of midair collisions highlights a need to place special emphasis on the importance of cockpit external vigilance. While some operators have taken action to train crews in effective scan techniques, there is a need for all pilots to make a more conscious effort to search outside the cockpit for conflicting traffic.

A. Scanning Technique. The probability of spotting a potential collision threat increases with the time spent looking outside, but certain techniques may be used to increase the effectiveness of the scan time. The human eye tends to focus somewhere, even in a featureless sky. In order to be most effective, the pilot should shift glances and refocus at intervals. Most pilots do this in the process of scanning the instrument panel, but it is also important to focus outside to set up the visual system for effective target acquisition.

B. Head Movement. Pilots should be reminded that it is necessary to move the head in order to search around the physical obstructions, such as door and window posts. The doorpost can cover a considerable amount of sky, but a small head movement can reveal a threat these areas could be concealing.

C. Peripheral Vision. Peripheral vision can be most useful in spotting collision threats from other aircraft. Each time a scan is stopped and the eyes are refocused, the peripheral vision takes on more importance because it is through this element that movement is detected. Apparent movement is almost always the first perception of collision threat and probably the most important because it is the discovery of a threat that triggers the events leading to proper evasive action and safe operation.

D. Scanning Emphasis. Inspectors should ensure that the subject of scanning and cockpit vigilance is included in training programs and is emphasized on all practical tests. Special emphasis should be given during contacts with pilot schools, flight instructors, during practical examinations, and while conducting Biennial Flight Reviews. Inspectors should be keenly aware of flight operations near navigational aids, high-density traffic areas, visual traffic patterns, and during simulated instrument practice where a tendency to "look inside" is common among pilots. Accident Prevention Program Managers have several slide-tape presentations on visual scan techniques: "Take Two and See," "The Midair Collision Problem," and "Using the Airspace." These presentations should be reviewed by all inspectors and examiners and used when practical.

7. ACCURATE POSITION REPORTING AND COLLISION AVOIDANCE.

A. Accident History. A fatal midair collision between a helicopter and a light twin engine airplane, inbound to the same airport, demonstrated the importance of accurate position reporting by pilots when communicating with ATC facilities. The events contributing to this accident are as follows:

(1) Because of radio frequency congestion, the airplane, which was on an IFR flight plan, was unable to communicate with the control tower upon arriving at the requested report fix. When the pilot of the airplane was able to contact the tower, he gave his position as inside the re-

quested fix. The controller, based on this report, was convinced that the airplane was within five miles of the final approach fix. The helicopter pilot contacted the same control tower and reported "coming up on" a known visual fix approximately two miles from the airport.

(2) The controller, having received these two indefinite position reports, believed that there was no conflict of traffic and did not issue a traffic advisory to either aircraft.

(3) If the pilots of both aircraft had reported their positions more accurately, this accident may not have occurred.

B. Importance of Accurate Position Reporting. Inspectors should ensure that the subject of accurate position reporting and collision avoidance is discussed frequently and that relevant information is given the widest possible dissemination during contact with flight instructor, pilot examiners, approved schools, and the aviation community. It should be made clear that it is a pilot responsibility to exercise diligent scanning and ac-

accurate reporting procedures during aircraft operations.

9. INSTRUMENT FLYING SKILLS - PARTIAL PANEL.

A. Partial Panel Training. Data gathered during accident investigations show a need for emphasis on the skills required for control of aircraft in instrument conditions without the use of the attitude indicator. Partial panel operations involving control of an airplane through the use of "needle, ball, airspeed" develops skills that are needed should the attitude indicator fail during flight in instrument conditions. These skills apply to all pilot certificates.

B. Partial Panel Emphasis. Inspectors should emphasize to examiners and flight instructors the need for pilots to maintain competency in partial panel operations. Testing of basic aircraft control with partial panel should be emphasized on all practical tests and proficiency checks when instrument flight skill is required for the type of pilot certificate being applied for or required.