

# Instructor's Guide

## To the Presolo Written Test

### Introduction

This Safety Advisor is designed to assist flight instructors in developing and administering a presolo written test. The first solo is a major milestone on the road to a successful checkride, and as a flight instructor you are responsible for ensuring that your students are well prepared for their “big day.” The materials in this Safety Advisor—suggested discussion topics, a sample presolo quiz and a take-home test—will help guarantee your students’ solo success.

Although some flight instructors view the presolo written test as nothing more than a regulatory requirement, when used properly it can benefit students throughout their piloting careers. The immediate goal of the test is to ensure that student pilots have the knowledge required to safely operate the aircraft from start-up to shutdown, but it can also serve as excellent preparation for the private pilot knowledge test and checkride, as well as future flight reviews.

Use this safety advisor as an aid in making the presolo written test an effective learning tool.



## Presolo Written Test Ideals

By leaving any precise requirements for the presolo written test out of the Federal Aviation Regulations, the FAA both blessed and cursed the student pilot. Technically, you are only required to test your student on the applicable regulations, flight characteristics, and operational limitations for the make and model of aircraft to be soloed. Of course, that's just the minimum requirement: An effective presolo test will probe more deeply into the student's knowledge, but do so without getting bogged down in obscure topics, or pushing the boundaries of the human attention span. Aim for a happy medium as you develop your test.

ASF recommends using the presolo written test as a valuable teaching tool, rather than simply treating it as just a required task.

ASF recommends requiring the student to list the references for the answers to each question.

The primary objective of any test is to evaluate knowledge, but testing can also be used to reinforce and refresh past learning, and serve as a reference for future questions. With these elements in mind, the presolo written test should require students to memorize key information and include a section that asks students not only to answer questions, but to provide a reference for the answer. This forces students

to open their books (few pilots love ground training) and provides a reference should the student have future questions on a related topic.

ASF recommends dividing the test into two sections: a closed-book written quiz and an open-book take-home test. Both the quiz and test should require the student to answer in writing.

Average students should complete the quiz portion of the presolo written test in approximately 15 to 20 minutes. The quiz should cover aircraft operational knowledge, such as V speeds and emergency procedures, and be graded immediately upon completion. Any incorrect answers should be corrected that evening during the take-home portion of the test. The take-home portion should take approximately one hour and include items such as FARs, aircraft operational procedures, and local procedures. To allow discussion of any incorrect answers, grade the take-home portion of the test in your student's presence.

ASF recommends that the student research and correct all incorrect answers.

Once all the answers have been corrected, it is wise, although not required, to keep the test and record the date, student's name, and the test results in the log you keep for sign-offs for a minimum period of three years. In addition, make a copy of the correct presolo written test and give it to your students for future reference.

Finally, use the presolo written as an opportunity to discuss and define a set of personal weather minimums for your students. Introduce the concept of 'legal is not always safe.' While the FARs define visual meteorological conditions (VMC) as greater than three miles visibility and a ceiling greater than one thousand feet few (if any) student pilots could fly safely in these conditions. The parameters set for the student should include visibility, ceiling, and surface winds. The discussion of personal minimums can also be expanded to include runway lengths and surfaces, fuel reserves, and recent flying experience.



## Presolo Topics

The following is a recommended list of topics that should be covered on the presolo written test:

- A. Written quiz
  - 1. V speeds and their definitions
  - 2. Aircraft emergency procedures
  - 3. Use of aircraft avionics and navigation equipment, as appropriate
- B. Take-home test
  - 1. Aircraft limitations
  - 2. Aircraft operation and maintenance
  - 3. FARs
    - a. Eligibility requirements for student pilots (61.83)
    - b. Solo flight requirements for student pilots (61.87)
    - c. General limitations (61.89)
    - d. Responsibility and authority of the pilot in command (91.3)
    - e. Careless or reckless operation (91.13)
    - f. Dropping objects (91.15)
    - g. Alcohol or drugs (91.17)
    - h. Portable electronic devices (91.21)
    - i. Preflight action (91.103)
    - j. Use of safety belts, shoulder harnesses and child restraint systems (91.107)
    - k. Right-of-way rules (91.113)
    - l. Minimum safe altitudes (91.119)
    - m. Altimeter settings (91.121)
    - n. Compliance with ATC clearances and instructions (91.123)
    - o. ATC light signals (91.125)
    - p. Operating on or in the vicinity of an airport in Class G airspace (91.126)
    - q. Operating on or in the vicinity of an airport in Class E airspace (91.127)
    - r. Operations in Class D airspace (91.129)
    - s. Operations in Class C airspace (91.130), as necessary
    - t. Operations in Class B airspace (91.131), as necessary
    - u. Restricted and prohibited areas (91.133)
    - v. Fuel requirements for flight in VFR conditions (91.151)
    - w. Basic VFR weather minimums (91.155)
    - x. Civil aircraft: Certifications required (91.203)
    - y. Aircraft lights (91.209)
    - z. Aerobatic flight (91.303)
- 4. *Aeronautical Information Manual*
  - a. Wake turbulence
  - b. Radio failure procedures
  - c. Airport signs and markings
  - d. Traffic pattern
    - 1. Pattern legs
    - 2. Entry and departure
    - 3. Standard turns
  - e. Special Use Airspace
  - f. Temporary Flight Restrictions (TFRs)
  - g. Notices to Airmen (notams)
- 5. Local procedures
  - a. Frequencies
    - 1. Airports
    - 2. Emergency
  - b. Airport procedures
    - 1. Traffic pattern directions and altitudes
    - 2. Noise abatement
    - 3. Particular flight school procedures (as applicable)

## Conclusion

If your students are having trouble in a particular area, have them complete additional training. The online training courses provided free by the AOPA Air Safety Foundation are a perfect way to build your student's, and your own, knowledge base.

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## Presolo Quiz

Instructions: Answer each question in the space provided. The instructor may pick and choose particular questions to shorten the length of the quiz.

1. Define and list the following speeds for your aircraft:

Vs-

Vso-

Vx-

Vy-

Va-

Vfe-

Vno-

Vne-

2. What is the airplane's best glide speed?  
When is it used?
3. State the procedure to respond to an in-flight engine failure.
4. List the procedure to respond to an engine fire on the ground while starting.
5. List the procedure for lost communications when arriving at an airport with an operating control tower.
6. What is the procedure for spin recovery?

## Take-Home Test

Instructions: Answer each question in the space provided, using the FARs, AIM, Airport/Facility Directory, and Pilot's Operating Handbook. Use the space to the left of the question number to list the reference for each question. The instructor may pick and choose particular questions to shorten the length of the test.

1. What is the maximum gross weight of the airplane in the Normal category?
2. If a glider is converging with an airplane, which has the right of way?
3. What are the limit load factors in both the Normal and Utility categories with the flaps up and down?
4. What preflight action is required of a pilot prior to a flight?
5. What is the maximum rpm of your airplane's engine?
6. Define an aerobatic maneuver.
7. Generally describe the engine in your airplane.
8. What is the definition of careless or reckless operation?
9. What is the oil capacity in your airplane?  
What is the minimum?

10. What is the minimum amount of time a pilot is required to wait after the consumption of alcohol?
11. What would happen to the fuel indicators if all electricity in the airplane was lost?
12. What are the basic VFR weather minimums? What is the minimum visibility for a student pilot?
13. Why is it necessary to drain fuel out of the sumps after refueling and before the first flight of the day?
14. List and describe each of the light gun signals available from air traffic control.
15. Will the engine still run if the master switch is turned off? Why?
16. What are wing-tip vortices (wake turbulence)? With which aircraft are they greatest? Describe the proper avoidance.
17. What endorsements are required for solo flight? What three documents must you have in your possession to solo an aircraft as a student?
18. During a mag check, what is the maximum allowable rpm drop?
19. Draw an airport traffic pattern, labeling each leg and the proper entry and departure points. Which turn direction is standard for an airport traffic pattern?
20. List the traffic pattern altitude, direction of turns, noise abatement procedures, and all radio frequencies for the following local area airports and their runways.
21. What is the fuel capacity of the aircraft you fly? How much is usable fuel?
22. What is the authority and responsibility of the pilot in command?
23. When are you required to wear a safety belt?
24. When are you permitted to deviate from an ATC instruction?
25. What grade(s) of aviation fuel is/are available for use? What color is each?
26. When an aircraft is approaching another head-on, each pilot should alter their course to the \_\_\_\_\_.
27. A(n) \_\_\_\_\_ on the runway indicates that the runway is closed.
28. Draw the pavement marking requiring you to stop before entering a runway.
29. When is dropping objects from an airplane permitted?

30. The \_\_\_\_\_ of two aircraft on approach to the same runway has the right of way.
31. What must a pilot do before entering Class D airspace?
32. What is the minimum safe altitude anywhere? Over congested areas?
33. List the day-VFR weather minimums in Class G, E, D, C, B, and A airspace.
34. List the documents that must be aboard the aircraft at all times.
35. When must the aircraft's navigation lights be on?
36. What are you, as a student pilot, required to have before operating in Class B airspace?
37. What is the minimum reserve fuel required for day VFR operations?

## FAR Part 61.87(b)

Solo requirements for student pilots:  
*Aeronautical knowledge.* A student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that meets the requirements of this paragraph:

- (1) The test must address the student pilot's knowledge of—
  - (i) Applicable sections of parts 61 and 91 of this chapter;
  - (ii) Airspace rules and procedures for the airport where the solo flight will be performed, and
  - (iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.
- (2) The student's authorized instructor must—
  - (i) Administer the test; and
  - (ii) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.





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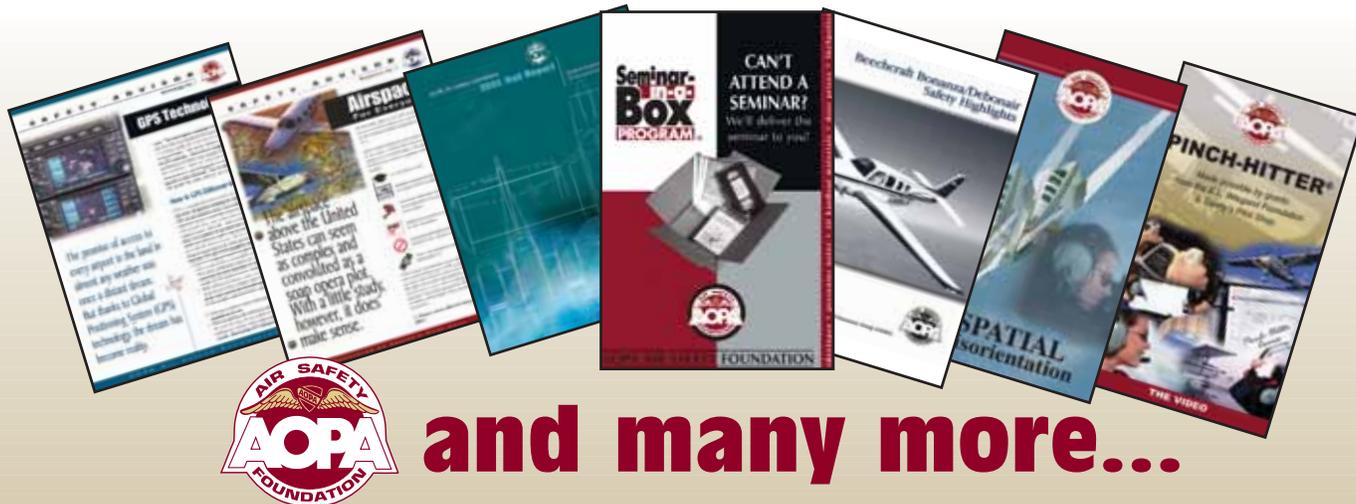
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