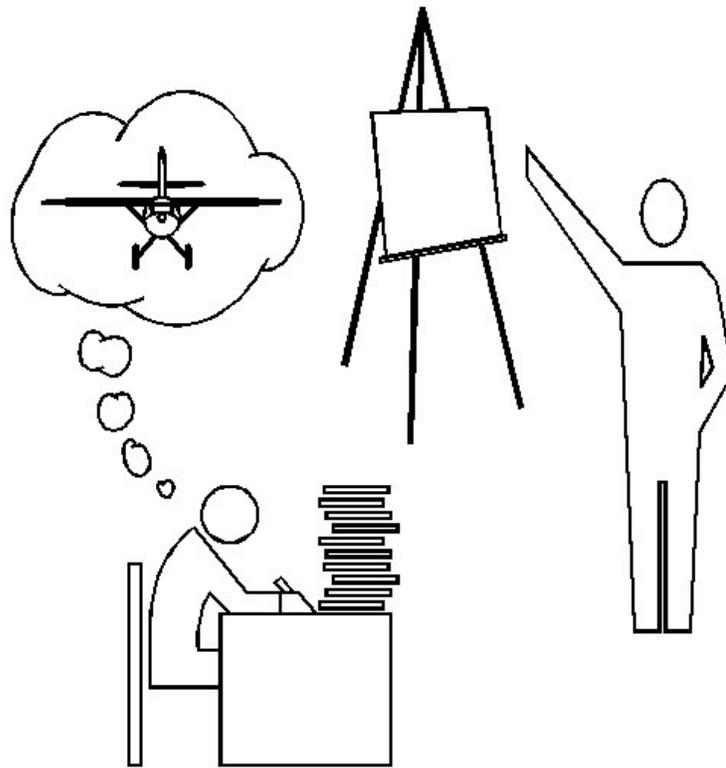


# Flight and Ground Instructor Knowledge Test Guide



February 2017





## INTRODUCTION

FAA-G-8082-7, dated February 2017, Flight and Ground Instructor Knowledge Test Guide, provides information for preparing you to take one or all of the following airman knowledge tests. This document supersedes all previously dated FAA-G-8082-7 versions.

<b><u>Test Name</u></b>	<b><u>Test Code</u></b>
Fundamentals of Instructing	FOI
Ground Instructor Basic	BGI
Ground Instructor Advanced	AGI
Flight Instructor Airplane	FIA
Flight Instructor Rotorcraft Helicopter	FRH
Flight Instructor Rotorcraft Gyroplane	FRG
Flight Instructor Glider	FIG
Flight Instructor Airplane (added rating)	AFA
Flight Instructor Helicopter (added rating)	HFA
Flight Instructor Gyroplane (added rating)	GFA
Flight Instructor Glider (added rating)	AFG
Flight Instructor Sport Airplane	SIA
Flight Instructor Sport Balloon	SIB
Flight Instructor Sport Glider	SIG
Flight Instructor Sport Lighter-Than-Air (Airship)	SIL
Flight Instructor Sport Powered Parachute	SIP
Flight Instructor Sport Weight-Shift-Control	SIW
Flight Instructor Sport Gyroplane	SIY
Military Competence Instructor	MCI

Federal Aviation Administration (FAA) airman knowledge tests are effective instruments for aviation safety and regulation compliance measurement. However, these tests can only sample the vast amount of knowledge every pilot needs to operate safely in the National Airspace System (NAS).

Comments may be emailed to [AFS630Comments@faa.gov](mailto:AFS630Comments@faa.gov).

## KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

The general qualifications for an Instructor Rating require you have a combination of experience, knowledge and skill.

Title 14 of the Code of Federal Regulations (14 CFR) part 61 requires that pilots must be able to read, write, speak, and understand the English language. If you cannot meet these requirements of English fluency, an airman certificate cannot be issued. For medical reasons, an appropriate limitation may be placed on the certificate.

You must pass the Fundamentals of Instructing Knowledge Test and a Flight or Ground Instructor Knowledge Test specific to the instructor rating sought. You may take these tests on the same day, and you do not have to take them in any particular order. An instructor rating obtained by passing the Military Competence Instructor (MCI) exam does not require the candidate to take the Fundamentals of Instructing (FOI) exam.

When applying for any additional instructor rating, you are not required to take the Fundamentals of Instructing Knowledge Test again. Once you have acquired a Flight Instructor Certificate, you are eligible to give ground instruction required for a Pilot or Instructor Certificate or rating, based on the ratings on your Flight Instructor Certificate. Because of this, it is not necessary to obtain a separate Ground Instructor Certificate since you would already have these privileges.

For a summary of knowledge test eligibility requirements for all certification areas listed above, refer to the FAA Airman Knowledge Testing Authorization Matrix located at [http://www.faa.gov/training\\_testing/testing/media/testing\\_matrix.pdf](http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf).

## **ROLE OF THE INSTRUCTOR**

All pilot training is directed toward developing safe and competent pilots. The more complete a student understands theory and principles, the easier it will be for that student to become a safe and competent pilot. It has long been recognized that flight and ground instruction go hand in hand. Each complements the other, resulting in a training program that is both meaningful and comprehensive.

Generally, pilots learn by one of two methods. Some learn by memorization while others acquire knowledge and understanding of basic procedures and techniques and apply these to various piloting operations. The latter method of learning is, by far, more effective. Effective pilot training is based on the knowledge and understanding of principles, along with skills that are essential to flight safety.

The keystone of the present-day training concept is the flight instructor—a professional who should assume full responsibility for all phases of a student pilot's flight and ground instruction. A flight instructor must first be fully qualified as a pilot. In addition, a successful instructor must meet qualifications far beyond those required for certification as a pilot. An instructor must have a thorough understanding of how learning occurs, and how to apply teaching methods that best foster learning. The most important factor is the instructor's own attitude toward instruction that determines the effectiveness of the teaching method. By understanding the teaching and learning processes, instructors will be better qualified to produce pilots who are able to operate safely within the National Airspace System (NAS).

## **KNOWLEDGE AREAS ON THE TESTS**

Flight and Ground Instructor Knowledge tests are comprehensive because they must test your knowledge in many subject areas. These include all aeronautical knowledge areas required for a Private and Commercial Pilot Certificate, as well as those required for a Flight or Ground Instructor Certificate. When applying for any Flight or Ground Instructor Knowledge Test, you should review the appropriate sections of 14 CFR part 61 for specific knowledge areas on each test.

Flight instructors should be knowledgeable of not only what to do and how to do it, but also why a maneuver is performed and what common errors result if the maneuver or procedure is not performed properly. Ground instructors should also be knowledgeable of all subjects; however, they would not be expected to understand evaluating pilot performance of maneuvers and analyzing common errors.

It is generally accepted that a pilot with much knowledge, but little skill, is not adequately equipped to fly an aircraft. Neither is the pilot who is skillful in the manipulative techniques of flying, but lacks aviation knowledge.

## DESCRIPTIONS OF THE TESTS

If you are pursuing initial flight or ground instructor certification, you must successfully complete the Fundamentals of Instructing Knowledge Test. However, if you hold a current teacher's certificate at the junior or senior high school level, or you are an instructor at a college or university, you can receive credit for this test. This test contains 50 questions, and you are allowed 1 hour and 30 minutes to complete the test. **The minimum passing score is 70 percent.**

In addition, you must successfully complete a knowledge test appropriate to the desired rating. The following tests each contain 100 questions (except for Ground Instructor—Basic, which contains 80 questions), and you are allowed 2 hours and 30 minutes to complete each test.

- Ground Instructor—Basic
- Ground Instructor—Advanced
- Flight Instructor—Airplane
- Flight Instructor—Helicopter
- Flight Instructor—Gyroplane
- Flight Instructor—Glider

If you are pursuing a flight instructor with a Sport Pilot Rating Certificate, you should review 14 CFR part 61, Section 61.23, Medical Certificates: Requirement and Duration; 14 CFR part 61, Section 61.35, Knowledge Test: Prerequisites and Passing Grades; and 14 CFR part 61, Subpart J—Sport Pilots and Subpart K—Flight Instructors With a Sport Pilot Rating.

Each of the following knowledge tests contains 70 questions, and you are allowed 2 hours and 30 minutes to complete each test.

- Flight Instructor—Sport Airplane
- Flight Instructor—Sport Balloon
- Flight Instructor—Sport Glider
- Flight Instructor—Sport Lighter-Than-Air (Airship)
- Flight Instructor—Sport Powered Parachute
- Flight Instructor—Sport Weight-Shift-Control
- Flight Instructor—Sport Gyroplane

If you desire to add a rating to your Flight Instructor Certificate, you must successfully complete a knowledge test, if required, appropriate to the desired rating.

The following tests each contain 25 questions, and you are allowed 1 hour to complete each test.

- Flight Instructor—Airplane—Added Rating
- Flight Instructor—Helicopter—Added Rating
- Flight Instructor—Gyroplane—Added Rating
- Flight Instructor—Glider—Added Rating

The following test contains 125 questions, and you are allowed 3 hours to complete.

- Military Competence Instructor

All test results expire at the end of 24 calendar months after the month in which the test was taken. All test questions are the objective, multiple-choice type. Each question can be answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another.

## TEST REGISTRATION

The FAA has designated two Airman Knowledge Testing (AKT) Organization Designation Authorization (ODA) Holders, which sponsor hundreds of knowledge testing center locations. These testing centers offer a full range of airman knowledge tests including: Aircraft Dispatcher, Airline Transport Pilot, Aviation Maintenance Technician, Commercial Pilot, Flight Engineer, Flight Instructor, Flight Navigator, Ground Instructor, Inspection Authorization, Instrument Rating, Parachute Rigger, Private Pilot, Recreational Pilot, Sport Pilot and Military Competence. Contact information for the AKT ODA Holders is provided below under Knowledge Test Centers.

The first step in taking a knowledge test is the registration process. You may either call a central registration phone number or appear at a testing center on a walk-in basis. If you choose to use a central registration phone number to schedule your test, you will need to be prepared to select a test date, choose a testing center, and make financial arrangements for test payment. You may register for tests several weeks in advance, and you may cancel your appointment according to the AKT ODA Holder's cancellation policy. If you do not follow the AKT ODA Holder's cancellation policies, you could be subject to a cancellation fee.

## APPLICANT IDENTIFICATION AND TEST AUTHORIZATION

The next step in taking a knowledge test is providing proper identification. You should determine what knowledge test prerequisites are necessary before going to the computer-testing center. Your instructor or local FAA Flight Standards District Office (FSDO) may advise you regarding the documentation required to be presented at the testing facility. Testing center personnel will not begin the test until your identification and eligibility is verified.

Acceptable forms of authorization and retesting procedures are available in the latest version of the Applicant Identification, Information, Verification, & Authorization Requirements Matrix located at [http://www.faa.gov/training\\_testing/testing/media/testing\\_matrix.pdf](http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf).

## TEST TAKING TIPS

Prior to launching the actual test, the AKT ODA Holder's testing software will provide you with an opportunity to practice navigating through the test. This practice (or tutorial) session may include a "sample" question(s). These sample questions have no relation to the content of the test, but are meant to familiarize you with the look and feel of the system screens, including selecting an answer, marking a question for later review, time remaining for the test, and other features of the testing software.

When taking a test, keep the following points in mind:

- Carefully read the instructions given with the test.
- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the answer options. You should clearly understand the problem before attempting to solve it.
- After formulating an answer, determine which answer option corresponds with your answer. The answer you choose should completely resolve the problem.
- From the options given, it may appear there is more than one possible answer; however, there is only one answer that is correct and complete. The other options are either incomplete, erroneous, or derived from popular misconceptions.

- If a certain question is difficult for you, it is best to mark it for review and proceed to the next question. After you answer the less difficult questions, return to those marked for review and answer them. The review marking procedure will be explained to you prior to starting the test. Although the computer should alert you to unanswered questions, make sure every question has an answer recorded. This procedure will enable you to use the available time to maximum advantage.
- When solving a calculation problem, select the answer closest to your solution. The problem has been checked with various types of calculators; therefore, if you have solved it correctly, your answer will be closer to the correct answer than any of the other choices.

## **USE OF TEST AIDS AND MATERIALS**

You may use aids, reference materials, and test materials within the guidelines listed below, if actual test questions or answers are not revealed. All models of aviation-oriented calculators may be used, including small electronic calculators that perform only arithmetic functions (add, subtract, multiply, and divide). Simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory, are permissible. Also, simple functions, such as square root and percent keys are permissible.

The following guidelines apply:

1. You may use any reference materials provided with the test. In addition, you may use scales, straightedges, protractors, plotters, navigation computers, log sheets, and electronic or mechanical calculators that are directly related to the test.
2. Manufacturer's permanently inscribed instructions on the front and back of such aids (e.g., formulas, conversions, regulations, signals, weather data, frequencies, weight-and-balance formulas) are permissible.
3. Testing centers may provide a calculator to you and/or deny use of your personal calculator based on the following limitations:
  - a. Prior to, and upon completion of the test, while in the presence of the Unit Member (formerly referred to as proctor), you must actuate the ON/OFF switch and perform any other function that ensures erasure of any data stored in memory circuits.
  - b. The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The Unit Member may refuse the use of your calculator when unable to determine the calculator's erasure capability.
  - c. Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
  - d. The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved is prohibited.
  - e. You are not permitted to use any booklet or manual containing instructions related to use of test aids.
4. Dictionaries are not allowed in the testing area.
5. The Unit Member makes the final determination relating to test materials and personal possessions you may take into the testing area.

## TESTING PROCEDURES FOR APPLICANTS REQUESTING SPECIAL ACCOMMODATIONS

If you are an applicant with a learning or reading disability, you may request approval from AFS-630, through the local FSDO or IFO, to take an airman knowledge test using one of the three options listed below, in preferential order:

- Option 1. Use current testing facilities and procedures whenever possible.
- Option 2. You may use a self-contained, electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process. (NOTE: The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack for private listening in order to avoid disturbing others during testing.)
- Option 3. If you do not choose to use the first or second option, you may request Unit Member assistance in reading specific words or terms from the test questions and/or supplement book. In the interest of preventing compromise of the testing process, the Unit Member must be an individual with no aviation background or expertise. The Unit Member must provide reading assistance only, with no explanation of words or terms. When this option is requested, the FSDO or IFO inspector must contact the Airman Testing Standards Branch (AFS-630) for assistance in selecting the test site and assisting Unit Member.

Prior to approval of any option, the FSDO or IFO Aviation Safety Inspector must advise you of the regulatory certification requirement of being able to read, write, speak, and understand the English language.

## CHEATING OR OTHER UNAUTHORIZED CONDUCT

Computer testing centers must follow strict security procedures to avoid test compromise. These procedures are established by the FAA and are covered in FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. The FAA has directed testing centers to terminate a test at any time a test Unit Member suspects a cheating incident has occurred. An FAA investigation will then be conducted. If the investigation determines that cheating or unauthorized conduct has occurred, then any airman certificate or rating that you hold may be revoked, and you may be prohibited for 1 year from applying for or taking any test for a certificate or rating under 14 CFR part 61.

## LEARNING STATEMENTS

Learning statements, as used in airman knowledge testing, refer to a measurable level of knowledge a student should be able to demonstrate following a defined element of training. The most current Learning Statement Reference Guide for Airman Knowledge Testing is online at [http://www.faa.gov/training\\_testing/testing/media/LearningStatementReferenceGuide.pdf](http://www.faa.gov/training_testing/testing/media/LearningStatementReferenceGuide.pdf).

We provide learning statements to help instructors and students become more familiar with the areas of knowledge applicable to the airman training, learning, studying, and testing processes.

Beyond serving as a useful reference in preparing for your airman knowledge test, the Learning Statement Reference Guide will assist you and your instructor in interpreting any learning statement codes that may appear on your Airman Knowledge Test Report. You will receive a test report immediately upon completion of the test. This report will list learning statement codes for any questions you may have answered incorrectly. You and your instructor should match the codes on the test report to the information in the Learning Statement Reference Guide in order to obtain the corresponding areas of knowledge deficiency.

Your instructor may be required to provide instruction on each of the areas of deficiency, and to provide a logbook or training record endorsement certifying you have demonstrated satisfactory knowledge in each area. Also, you must present the *original* Airman Knowledge Test Report to the examiner conducting your

practical test. During the practical test, the examiner will refer to the learning codes and statements to evaluate your knowledge in the noted areas of deficiency.

## **REQUESTING YOUR TEST BE HAND-SCORED**

If you wish to have your test hand-scored, you must submit a request, in the form of a signed letter, to the Airman Testing Standards Branch, AFS-630. The request must be accompanied by a copy of your Airman Knowledge Test Report and a legible photocopy of a government issued identification with your photograph and signature. Mail or fax this information to: (e-Mail requests are not accepted due to security issues.)

Federal Aviation Administration  
Airman Testing Standards Branch, AFS-630  
P.O. Box 25082  
Oklahoma City, OK 73125  
Or Fax to: 405 954-4748

**Note:** *If you have comments regarding test questions, test procedures, or supplemental material content, please e-Mail AFS-630 at AFS630Comments@faa.gov.*

## **AIRMAN KNOWLEDGE TEST REPORTS**

Upon completion of the knowledge test, you will receive your Airman Knowledge Test Report, which reflects your score. The test report will be stamped with the testing center's raised/embossed seal.

The Airman Knowledge Test Report must be presented to the examiner prior to taking the practical test. During the oral portion of the practical test, the examiner is required to evaluate the noted areas of deficiency.

Should you require a duplicate Airman Knowledge Test Report due to loss or destruction of the original, send a signed request accompanied by a check or money order for \$12.00, payable to the FAA. Send the request to:

Federal Aviation Administration  
Airmen Certification Branch, AFS-760  
P.O. Box 25082  
Oklahoma City, OK 73125

Airman Knowledge Test Reports are valid for the 24-calendar month period following the month you complete the practical test. **If the Airman Knowledge Test Report expires before completion of the practical test, you must retake the knowledge test.**

## **TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION**

Most of the current Flight Standards Service airman training and testing publications can be obtained in electronic format from the FAA Website, [www.faa.gov](http://www.faa.gov). The training and testing publications and general information can be found on the opening page of that Website under the Training and Testing tab. If a publication is not available in electronic format, there are instructions for obtaining paper copies. Information found on the Website includes the following:

- Advisory Circulars
- Airworthiness Directives
- Code of Federal Regulations
- Computer Testing Supplements
- Knowledge Test Centers

- Sample Knowledge Test questions
- Knowledge Test Statistics
- Learning Statement Reference Guide
- Practical Test Standards
- Training Handbooks
- Type Certificate Data Sheets

### **Advisory Circulars**

Advisory circulars (ACs) provide guidance and information on various subjects related to airman certification.

### **Airworthiness Directives**

Airworthiness Directives (ADs) are notifications to aircraft owners of a known safety deficiency with a specific model of aircraft, engine, avionics, or other system.

### **Code of Federal Regulations**

The portion of 14 CFR containing what was formerly known as the Federal Aviation Regulations can be found on the Website. 14 CFR contains regulations designed to promote aviation safety, and govern all aviation activities in the United States.

### **Computer Testing Supplements**

The knowledge testing supplements contain the graphics, legends, and maps that are needed to successfully respond to certain knowledge test items. ODA test center personnel will provide these supplements during the airman knowledge test. You can review them prior to testing at [http://www.faa.gov/training\\_testing/testing/supplements/media/flight\\_ground\\_instructor\\_akts.pdf](http://www.faa.gov/training_testing/testing/supplements/media/flight_ground_instructor_akts.pdf). Marking in the supplement book is prohibited; however, you may request a photo copy of any figure either before or during your exam. This marked or unmarked copy must be returned to the proctor at the end of the exam.

### **Knowledge Test Centers**

The Knowledge Test Centers portion of the Website contains current listings of Airman Knowledge Testing (AKT) Organization Designation Authorization (ODA) Holders and other testing centers, and the registration telephone numbers to call to register for a test.

The following is a list of the ODA holders authorized to give FAA airman knowledge tests. This list should be helpful in case you choose to register for a test or simply want more information.

 [Computer Assisted Testing Service \(CATS\)](#)  
777 Mariners Island Blvd., Suite 200  
San Mateo, CA 94404  
**Applicant inquiry and test registration: 1-800-947-4228**  
From outside the U.S. (650) 259-8550

 [PSI](#)  
16821 SE McGillivray Blvd., Suite 201  
Vancouver, WA 98683  
**Applicant inquiry and test registration: 1-800-211-2753 or 1-800-211-2754**  
From outside the U.S. (360) 896-9111

## Knowledge Test Questions

Sample questions are located in the Airman Knowledge Test Questions section of the Website and represent the types of questions included in the actual test banks. Practicing these questions will help you become familiar with similar questions on the airman knowledge tests. The knowledge test is not designed to intimidate any prospective airman; it is designed to measure an applicant's understanding of the rules, regulations and knowledge areas required to receive an FAA certificate.

## Knowledge Test Statistics

Test statistics for all airman knowledge tests are contained in a series of tables organized by year and subject area. Individual tables are provided for the following subject areas: test volume, pass rates, average test scores, countries, regions, and district offices.

## Practical Test Standards

The Practical Test Standards outline the knowledge and skill requirements for each airman certificate and rating. The references listed in each task of the Practical Test Standards indicate the specific publications used to develop the skill standards. The ability to issue immediate changes prior to publishing revised printed copies ensures the Practical Test Standards are always accurate and usable.

## Training Handbooks

The training handbooks are the basic information sources an airman applicant should refer to when preparing for the knowledge and practical tests for a specific certificate or rating.

## Classification Code

Topic, Content and Specific (TCS) codes listed in this guide are NOT a description of the Learning Statement Codes (LSC) found in the 'Learning Statement Reference Guide for Airman Knowledge Testing' document, but are a hierarchical sequence of classification codes placing a question in a unique category. FAA knowledge test question development uses the following hierarchy:

- Topic— Overall subject matter topic code. The highest classification of overall subject matter a knowledge test item was developed to assess (e.g., Aerodynamics).
- Content—Secondary level subject matter code (e.g., Airspeed).
- Specific— the basic hierarchical classification code the subject matter for a knowledge test item (e.g., Thrust).



## References Appendix

The knowledge tests for Flight and Ground Instructor exams are based on the following references.

- 14 CFR part 1 Definitions and Abbreviations
- 14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations
- 14 CFR part 23 Airworthiness Standards: Normal, Utility, Acrobatic and Commuter
- 14 CFR part 61 Certification: Pilots, Flight Instructors, and Ground Instructors
- 14 CFR part 91 General Operating and Flight Rules
- 49 CFR 1544
- 49 CFR part 830 Notification and Reporting of Aircraft Accidents
- AC 00-45 - Aviation Weather Services
- AC 00-6 - Aviation Weather
- AC 20-43 - Aircraft Fuel Control
- AC 60-22 - Aeronautical Decision Making
- AC 61-107 - Operations of Aircraft at Altitudes Above 25,000 Feet MSL and/or MACH numbers (MMO) Greater than .75
- AC 61-67 - Stall Spin Awareness Training
- AC 90-48 - Pilots` Role in Collision Avoidance
- AC 91-13 - Cold Weather Operation of Aircraft
- AC 91-43 - Unreliable Airspeed Indication
- Aeronautical Information Manual
- Chart Supplements U.S.
- FAA Accident Prevention Program Bulletins
- FAA-H-8083-1 - Aircraft Weight and Balance Handbook
- FAA-H-8083-11 - Balloon Flying Handbook
- FAA-H-8083-13 - Glider Flying Handbook
- FAA-H-8083-15 - Instrument Flying Handbook
- FAA-H-8083-2 - Risk Management Handbook
- FAA-H-8083-21 - Helicopter Flying Handbook
- FAA-H-8083-21 - Rotorcraft Flying Handbook
- FAA-H-8083-25 - Pilot`s Handbook of Aeronautical Knowledge
- FAA-H-8083-29 - Powered Parachute Flying Handbook
- FAA-H-8083-3A - Airplane Flying Handbook
- FAA-H-8083-9 - Aviation Instructor Handbook
- Practical Test Standards
- Sectional Aeronautical Chart

**Note:** *The latest revision of these references should be used.*