



FAA-H-8083-4

# Helicopter Instructor's Handbook



U.S. Department of Transportation

Federal Aviation Administration



It bleed off by avoiding dust or gr. STOP rotor to slow or set down and avoid assistance.



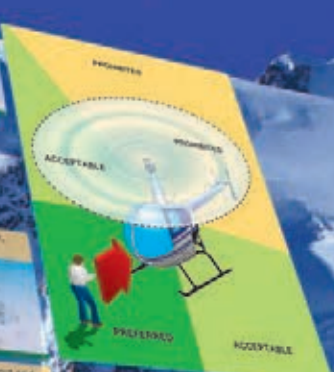
Disembarking while helicopter is at the hover, get out and off in a smooth/shuffled manner.



Carry tools, etc., horizontally below waist level—never upright or on the shoulder.



NEW CHAIRS



**Lesson Plan I**

**Objective**  
The purpose of this lesson is to introduce the

**Completion Standards**  
The student will demonstrate a basic knowledge of safety, and use of flight controls in a cruise

**Content**

1. Preflight Discussion
  - a. Discuss lesson objective
  - b. Normal checklist procedure
  - c. Weather analysis
2. Review n/a
3. Instructor Actions
  - a. Preflight used as introduction
  - b. Short, familiarization
4. Student Actions
  - a. Enters and exits helicopter
  - b. Handles controls

**Postflight Discussion**  
Review the next lesson



Helicopter Instructor's Handbook  
2012  
FAA-H-8083-4

Aviation Supplies & Academics, Inc.  
7005 132nd Place SE  
Newcastle, Washington 98059-3153

© 2012 Aviation Supplies & Academics, Inc.

This electronic publication is comprised of the same content as the Federal Aviation Administration's official release of this same title. ASA does not claim copyright on any material published herein that was taken from United States government sources. Hyperlinks and index tags have been incorporated throughout to facilitate ease of use for this electronic version. All rights reserved. No part of this electronic file may be reproduced, transmitted, shared, distributed or resold without written permission from the publisher.

8083-4-PD  
978-1-61954-016-3

# Table of Contents

<b>Preface</b> .....	<b>iii</b>	Thrust .....	3-4
<b>Acknowledgments</b> .....	<b>v</b>	Drag .....	3-5
<b>Table of Contents</b> .....	<b>vii</b>	Airfoil.....	3-6
<b>Chapter 1</b>		Blade Twist .....	3-6
<b>Introduction to Flight Training</b> .....	<b>1-1</b>	Rotor Blade and Hub Definitions.....	3-7
Purpose of Flight Training .....	1-1	Airflow and Reactions in the Rotor System.....	3-7
Practical Flight Instructor Strategies.....	1-2	Rotor Blade Angles.....	3-8
The Federal Aviation Administration (FAA) .....	1-3	Hovering Flight.....	3-8
Role .....	1-3	Translating Tendency or Drift .....	3-10
FAA Reference Material .....	1-3	Pendular Action .....	3-10
Role of the Examiner .....	1-5	Coning .....	3-10
Role of the Certificated Flight Instructor (CFI).....	1-5	Coriolis Effect (Law of Conservation of Angular Momentum).....	3-11
Flight Safety Practices .....	1-6	Ground Effect .....	3-11
Helicopter Hazards.....	1-6	Gyroscopic Precession.....	3-12
Instructional Hazards .....	1-8	Forward Flight .....	3-12
Collision Avoidance.....	1-9	Translational Lift .....	3-12
See and Avoid .....	1-9	Translational Thrust.....	3-13
Positive Exchange of Flight Controls.....	1-10	Induced Flow .....	3-13
Single-Pilot Resource Management (SRM).....	1-10	Transverse Flow Effect.....	3-13
Risk Management .....	1-11	Dissymmetry of Lift.....	3-13
Chapter Summary .....	1-12	Hover .....	3-13
<b>Chapter 2</b>		Translational Flight .....	3-14
<b>Introduction to the Helicopter</b> .....	<b>2-1</b>	Sideward, Rearward, and Turning Flight.....	3-14
Introduction.....	2-1	Autorotation .....	3-15
Training Procedures .....	2-2	Entry .....	3-15
Introduction to the Helicopter .....	2-2	Steady-State Descent.....	3-15
Introduction to Flying.....	2-3	Deceleration.....	3-15
Instructor Tips .....	2-4	Instructor Tips.....	3-16
Chapter Summary .....	2-6	Chapter Summary .....	3-16
<b>Chapter 3</b>		<b>Chapter 4</b>	
<b>Aerodynamics of Flight</b> .....	<b>3-1</b>	<b>Helicopter Flight Controls</b> .....	<b>4-1</b>
Introduction.....	3-1	Introduction.....	4-1
Forces Acting on the Aircraft .....	3-2	Collective Pitch Control.....	4-2
Lift.....	3-2	Throttle Control .....	4-3
Bernoulli's Principle.....	3-2	Cyclic Pitch Control .....	4-4
Newton's Laws of Motion.....	3-2	Antitorque Control .....	4-5
		Practice.....	4-6
		Instructor Tips.....	4-6
		Chapter Summary .....	4-6

<b>Chapter 5</b>	
<b>Helicopter Components, Sections, and Systems</b>	<b>5-1</b>
Introduction	5-1
Airframe Design	5-2
Rotor Blade Design	5-2
Powerplant Design	5-2
Antitorque System Design	5-2
Landing Gear System Design	5-2
Airframe	5-2
Aluminum	5-3
Advantages	5-3
Disadvantages	5-3
Composite Construction	5-4
Advantages	5-4
Disadvantages	5-4
Fuselage	5-4
Main Rotor System	5-4
Rigid Rotor System	5-5
Semirigid Rotor System	5-5
Fully Articulated Rotor System	5-8
Bearingless Rotor System	5-10
Tandem Rotor	5-10
Coaxial Rotor System	5-11
Swashplate Assembly	5-12
Antitorque Systems	5-14
Tail Rotor	5-14
Other Types of Antitorque System	5-14
Engines	5-16
Reciprocating Engine (Piston)	5-16
Turbine Engine	5-16
Compressor	5-18
Combustion Chamber	5-18
Turbine	5-18
Transmission System	5-19
Main Rotor Transmission	5-19
Antitorque Drive System	5-20
Clutch	5-20
Freewheeling Unit	5-20
Fuel System	5-21
Engines	5-21
Reciprocating Engines	5-21
Carburetor	5-21
Carburetor Ice	5-22
Fuel Injection	5-22
Electrical Systems	5-23
Hydraulics	5-23
Hydraulic System Components	5-23
Hydraulic System Failure	5-24
Stability Augmentation Systems (SAS)	5-24
Autopilot	5-25

Environmental Systems (Heating/Cooling)	5-25
Anti-Icing Systems	5-25
Engine Anti-Ice	5-25
Carburetor Icing	5-25
Preflight and Deicing	5-26
Instructor Tips	5-26
Chapter Summary	5-26

<b>Chapter 6</b>	
<b>Rotorcraft Flight Manual</b>	<b>6-1</b>
Introduction	6-1
Introducing the Manual	6-2
Sections of the Manual	6-2
General Information (Section 1)	6-2
Operating Limitations (Section 2)	6-2
Emergency Procedures (Section 3)	6-4
Normal Procedures (Section 4)	6-4
Performance (Section 5)	6-5
Weight and Balance (Section 6)	6-6
Aircraft and Systems Description (Section 7)	6-6
Handling, Servicing, and Maintenance (Section 8)	6-6
Supplements (Section 9)	6-7
Chapter Summary	6-8

<b>Chapter 7</b>	
<b>Weight and Balance</b>	<b>7-1</b>
Introduction	7-1
Weight	7-2
Definitions	7-2
Determining Empty Weight	7-2
Balance	7-3
Center of Gravity (CG)	7-3
CG Forward of Forward Limit	7-3
CG Aft of Aft Limit	7-3
Lateral Balance	7-4
Ballast	7-4
Weight and Balance Calculations	7-4
Weight Versus Aircraft Performance	7-5
Arm (Station)	7-5
Moment	7-5
Weight and Balance Methods	7-6
Computational Method	7-6
Loading Chart Method	7-6
Combination Method	7-8
Calculating Lateral CG	7-9
Instructor Tips	7-10
Chapter Summary	7-10

<b>Chapter 8</b>	
<b>Helicopter Performance</b>	<b>8-1</b>
Introduction	8-1

Factors Affecting Performance.....	8-2	Normal Descent .....	10-5
Density Altitude .....	8-2	Instructional Points.....	10-5
Weight.....	8-3	Common Student Difficulties.....	10-5
Loads .....	8-3	Attitude .....	10-5
Load Factor.....	8-3	Coordination .....	10-5
Wind.....	8-4	Scan.....	10-5
Height/Velocity Diagram.....	8-4	Turns .....	10-5
Performance Planning.....	8-5	Instructional Points.....	10-6
Instructor Tips.....	8-5	Common Student Difficulties.....	10-6
Chapter Summary .....	8-6	Attitude .....	10-6
		Leaning Away From a Turn .....	10-6
		Failure to Clear the Area.....	10-6
		Rolling Out of a Turn .....	10-6
		Climbing and Descending Turns .....	10-6
		Instructional Points.....	10-6
		Common Student Difficulties.....	10-7
		Attitude .....	10-7
		Scan.....	10-7
		Coordination Exercises .....	10-7
		Approaches .....	10-7
		Instructional Points.....	10-8
		Common Student Difficulties.....	10-8
		Ground Track.....	10-8
		Altitude .....	10-8
		Airspeed.....	10-8
		Approach Angle.....	10-8
		Traffic .....	10-9
		Power Adjustments.....	10-9
		Go-Around .....	10-9
		Instructional Points.....	10-9
		Common Student Difficulties.....	10-9
		Initiating the Go-Around .....	10-9
		Coordination .....	10-9
		Normal and Crosswind Takeoff From a Hover .....	10-9
		Instructional Points.....	10-9
		Crosswind Considerations During Takeoffs .....	10-10
		Common Student Difficulties.....	10-10
		Attitude Control.....	10-10
		Heading Control.....	10-10
		Crosswind Corrections.....	10-10
		Traffic .....	10-11
		Hovering .....	10-11
		Vertical Takeoff to a Hover and Hovering.....	10-11
		Instructional Points .....	10-11
		Common Student Difficulties .....	10-13
		Hovering Turn .....	10-14
		Instructional Points .....	10-14
		Common Student Difficulties .....	10-15
<b>Chapter 9</b>			
<b>Preflight and Postflight Procedures.....</b>	<b>9-1</b>		
Introduction.....	9-1		
Checklists.....	9-2		
Required Documents.....	9-2		
Preflight Inspection .....	9-3		
Cockpit Management.....	9-4		
Ground Operations.....	9-5		
Engine Start.....	9-6		
Taxiing .....	9-7		
Before Takeoff.....	9-7		
After Landing.....	9-7		
Parking .....	9-7		
Engine Shutdown.....	9-9		
Postflight .....	9-9		
Securing and Servicing.....	9-9		
Instructor Tip .....	9-9		
Chapter Summary .....	9-9		
<b>Chapter 10</b>			
<b>Basic Flight Maneuvers .....</b>	<b>10-1</b>		
Introduction.....	10-1		
Basic Maneuvers.....	10-2		
Straight-and-Level Flight.....	10-2		
Instructional Points.....	10-2		
Common Student Difficulties.....	10-3		
Visualizing Attitude.....	10-3		
Overcontrolling.....	10-3		
Trim .....	10-3		
Coordination .....	10-3		
Scan.....	10-3		
Kinesthesia.....	10-3		
Normal Climb .....	10-4		
Instructional Points.....	10-4		
Common Student Difficulties.....	10-4		
Attitude .....	10-4		
Overcontrolling.....	10-4		
Coordination .....	10-5		
Scan.....	10-5		

Hovering Forward .....	10-16	Rapid Deceleration or Quick Stop .....	11-6
Instructional Points .....	10-16	Instructional Points.....	11-6
Common Student Difficulties .....	10-16	Common Student Difficulties.....	11-7
Hovering Sideward.....	10-16	Coordination .....	11-7
Common Student Difficulties .....	10-17	Recovery .....	11-7
Hovering Rearward .....	10-17	Steep Approach to a Hover .....	11-7
Instructional Points .....	10-17	Instructional Points.....	11-8
Common Student Difficulties .....	10-17	Common Student Difficulties.....	11-8
Landing From a Hover .....	10-18	Shallow Approach and Running/Roll-On Landing.....	11-8
Instructional Points .....	10-18	Instructional Points.....	11-9
Common Student Difficulties .....	10-18	Common Student Difficulties.....	11-9
Taxi .....	10-19	Approach Angle.....	11-9
Air Taxi .....	10-19	Attitude Control .....	11-9
Surface/Ground Taxi .....	10-19	Collective Control.....	11-10
Instructional Points.....	10-19	Touchdown .....	11-10
Ground Reference Maneuvers .....	10-20	Slope Operations.....	11-10
Rectangular Course .....	10-20	Slope Landings.....	11-10
S-Turn.....	10-21	Instructional Points .....	11-11
Turns Around a Point .....	10-21	Common Student Difficulties .....	11-12
Common Student Difficulties.....	10-22	Slope Takeoff .....	11-12
Failure To Plan Properly.....	10-22	Instructional Points .....	11-12
Coordination .....	10-22	Common Student Difficulties .....	11-12
Division of Attention .....	10-22	Confined Area Operations.....	11-12
Attitude .....	10-22	Instructional Points.....	11-13
Scan.....	10-22	Approach and Landing .....	11-13
Instructor Tips.....	10-22	Takeoff.....	11-14
Chapter Summary .....	10-24	Common Student Difficulties.....	11-15
 		Pinnacle and Ridgeline Operations.....	11-15
<b>Chapter 11</b>		Pinnacle Landings .....	11-15
<b>Advanced Flight Maneuvers.....</b>	<b>11-1</b>	Instructional Points.....	11-15
Introduction.....	11-1	Common Student Difficulties.....	11-16
Instructor's Approach .....	11-2	Planning .....	11-16
Scenario-Based Training .....	11-2	Approach Angle.....	11-16
Identification, Prevention, and Recovery .....	11-2	Airspeed.....	11-16
Reinforce Fundamentals.....	11-2	Pinnacle Takeoff and Climb .....	11-16
Reconnaissance Procedures .....	11-2	Instructional Points.....	11-16
High Reconnaissance .....	11-3	Common Student Difficulties.....	11-16
Low Reconnaissance .....	11-3	Planning .....	11-16
Ground Reconnaissance .....	11-4	RPM.....	11-17
Maximum Performance Takeoff.....	11-4	Airspeed.....	11-17
Instructional Points.....	11-4	Night Flying .....	11-17
Common Student Difficulties.....	11-5	Common Student Difficulties.....	11-17
Coordination .....	11-5	Takeoff.....	11-17
Airspeed .....	11-5	Airborne .....	11-17
Running/Rolling Takeoff .....	11-5	Approach.....	11-17
Instructional Points.....	11-5	Instructional Points.....	11-17
Common Student Difficulties.....	11-6	Cross-Country Operations .....	11-18
RPM.....	11-6	Instructional Points.....	11-18
Attitude Control .....	11-6	Common Student Difficulties.....	11-18
Wind .....	11-6		

Poor Cross-Country Planning .....	11-18
Reliability on Navigation Equipment .....	11-18
Instructor Tips .....	11-18
Chapter Summary .....	11-20

## Chapter 12

<b>Helicopter Emergencies.....</b>	<b>12-1</b>
Introduction.....	12-1
Autorotative Descents.....	12-2
Straight-In Autorotation, With Instructional Points .....	12-2
Autorotations With Turns, With Instructional Points .....	12-4
Power Recovery From Practice Autorotation, With Instructional Points.....	12-4
Power Failure in a Hover, With Instructional Points .....	12-5
Common Student Difficulties With Autorotation ....	12-5
Emergency Situations for Discussion Only .....	12-5
Vortex Ring State (Settling With Power).....	12-6
Retreating Blade Stall.....	12-7
Ground Resonance .....	12-7
Low-G Conditions and Mast Bumping .....	12-8
Low Rotor RPM.....	12-9
Blade Stall.....	12-9
Recovery From Low Rotor RPM .....	12-9
Common Student Difficulties.....	12-10
Brownout/Whiteout .....	12-10
System or Equipment Malfunctions.....	12-11
Antitorque System Failure.....	12-11
Complete Loss of Tail Rotor Thrust.....	12-11
Fixed Pitch Settings .....	12-11
Loss of Tail Rotor Components.....	12-11
Unanticipated Yaw/Loss of Tail Rotor Effectiveness (LTE).....	12-11
Main Drive Shaft Failure.....	12-12
Hydraulic Failure.....	12-12
Governor Failure .....	12-12
Multiengine Operations With One Engine Inoperative.....	12-12
Emergency Equipment and Survival Gear.....	12-12
Scenario-Based Training.....	12-13
Instructor Tips .....	12-14
Chapter Summary .....	12-14

## Chapter 13

<b>Attitude Instrument Flying.....</b>	<b>13-1</b>
Introduction.....	13-1
Instructor's Objective.....	13-2
Ground Instruction.....	13-2
Flight Instruction.....	13-3
Instructional Techniques .....	13-4

Student Tendencies.....	13-5
Instructional Objectives .....	13-6
Instructor Tips .....	13-6
Chapter Summary .....	13-7

## Chapter 14

<b>Night Operations .....</b>	<b>14-1</b>
Introduction.....	14-1
Instructor's Objective.....	14-2
Eye Anatomy and Physiology.....	14-2
Visual Problems .....	14-2
Night Vision Protection.....	14-2
Self-Imposed Stress .....	14-4
Scanning Techniques.....	14-4
Visual Illusions.....	14-5
Flight Instruction.....	14-6
Preflight Inspection .....	14-7
Instructor Tips.....	14-10
Chapter Summary .....	14-10

## Chapter 15

<b>Helicopter Operations.....</b>	<b>15-1</b>
Introduction.....	15-1
Collision Avoidance.....	15-2
Runway Incursions.....	15-2
Safety Considerations .....	15-2
Traffic Patterns.....	15-2
Instructional Points.....	15-3
Common Student Difficulties.....	15-4
Drift Correction .....	15-4
Spacing From Other Aircraft.....	15-4
Altitude and Airspeed.....	15-4
Airspace .....	15-5
Helicopter Turbine and Multiengine Transition .....	15-5
Floats, Wheeled Landing Gear, or Ski Transitions ....	15-5
Floats .....	15-6
Wheeled Landing Gear.....	15-7
Skis .....	15-7
External Loads .....	15-7
Personnel .....	15-7
Knowledge and Skill .....	15-7
Emergency Procedures .....	15-8
Instructor Tips.....	15-8
Chapter Summary .....	15-8

## Chapter 16

<b>Practical Examination and Preparation for Flight Review .....</b>	<b>16-1</b>
Introduction.....	16-1
Documentation.....	16-1
Preparing the Student .....	16-2
Last Training Flight.....	16-2

Application and Testing Preparation.....	16-2
Preparation for a Practical Exam .....	16-2
Training .....	16-2
Flight Review .....	16-2
Who Needs a Flight Review?.....	16-4
Flight Review Requirements.....	16-4
Preparation for the Flight Review .....	16-4
Model or Type of Helicopter Flown.....	16-4
Nature of Flight Operations .....	16-4
Recency of Flight Experience.....	16-4
Chapter Summary .....	16-6

## **Chapter 17**

### **Single-Pilot Resource Management, Aeronautical Decision-Making, and Risk Management.....17-1**

Introduction.....	17-1
Origins of ADM and SRM .....	17-3
The Decision-Making Process.....	17-3
Defining the Problem.....	17-4
Choosing a Course of Action.....	17-4
Implementing the Decision and Evaluating the Outcome.....	17-4
Improper Decision-Making Outcomes .....	17-5

FAA Resources .....	17-5
Human Factors .....	17-6
Curiosity: Healthy or Harmful?.....	17-6
Risk Management .....	17-6
Assessing Risk.....	17-6
Using the 3P To Form Good Safety Habits.....	17-7
The PAVE Checklist .....	17-8
Recognizing Hazardous Attitudes .....	17-8
Use of Resources .....	17-9
Internal Resources .....	17-10
External Resources .....	17-10
Workload Management .....	17-11
Situational Awareness .....	17-12
Obstacles to Maintaining Situational Awareness.....	17-12
Operational Pitfalls .....	17-12
Instructor Tips.....	17-14
Chapter Summary .....	17-14

### **Glossary .....G-1**

### **Index .....I-1**



Ensure the student understands that a helicopter operates in a three-dimensional environment and requires specific skills to control the aircraft:

- Coordination—the ability to use the hands and feet together subconsciously and in the proper relationship to produce desired results in the helicopter control.
- Control touch—to develop the ability to sense and evaluate the varying pressures and resistance of the control surfaces and/or the instructor’s input transmitted through the cockpit flight controls and apply inputs in response to those pressures.
- Timing—the application of muscular coordination at the proper instant to make maneuvering flight a constant smooth process.
- Mental comprehension of aerodynamic state, power required versus power available, and hazards present.

Keep in mind that an accomplished pilot demonstrates the ability to assess a situation quickly and accurately and to determine the correct procedure to be followed under the circumstance; to analyze accurately the probable results of a given set of circumstances or of a proposed procedure; to exercise care and due regard for safety; to gauge accurately the performance of the aircraft; and to recognize personal limitations and limitations of the aircraft and avoid approaching the critical points of each. The development of airmanship skills requires effort and dedication on the part of both the student and the flight instructor. It begins with the first training flight when the instructor encourages proper habit formation by introducing and modeling safe operating practices.

While every aircraft has its own particular flight characteristics, the purpose of primary and intermediate flight training is not to learn how to fly a particular make and model of helicopter; it is to develop skills and safe habits that are transferable to any helicopter. [Figure 1-1] Basic airmanship skills serve as a firm foundation for this. Acquiring necessary airmanship skills during training and demonstrating these skills by flying with precision and safe flying habits allows the pilot to transition easily to more complex helicopters. Remember, the goal of flight training is to become a safe and competent pilot, and that passing required tests for pilot certification is only the first step toward this goal.

### Practical Flight Instructor Strategies

As discussed in Chapter 8 of the Aviation Instructor Handbook, certificated flight instructors (CFIs) should remember they are a role model for the student. The flight instructor should demonstrate good aviation air sense and practices at all times.



**Figure 1-1.** As part of flight training, a pilot instructs a student on proper techniques for landing at an airport.

For the helicopter CFI, this means:

- Before the flight—discuss the procedures for the exchange of controls, establish scan areas for clearing the aircraft, and establish who is responsible for initiating immediate action in an emergency.
- During flight—prioritize the tasks of aviating, navigating, and communicating. Instill the importance of “see and avoid” and utilizing aircraft lighting to be more visible in certain flight conditions.
- During landing—conduct stabilized approaches, maintain proper angle and desired rate of closure on final. Use aeronautical decision-making (ADM) to demonstrate good judgment for go-arounds, wake turbulence avoidance, traffic, and terrain avoidance.
- Always—remember that safety is paramount.

Flight instructors have the responsibility of producing the safest pilots possible. For that reason, CFIs should tirelessly encourage each student to learn as much as he or she is capable of and keep raising the bar toward the ultimate goal. When introducing lesson tasks, flight instructors should introduce the student to the Practical Test Standards (PTS) and discuss that the minimum acceptable standards for passing a given maneuver are stated therein. The CFI must stress to the student that these are only the minimum standards and that he or she should strive for much higher performance.

The PTS is not a teaching tool. It is a testing tool. The overall focus of flight training should be on learning, which includes gaining an understanding of why the standards exist and how they were determined. [Figure 1-2] Use the PTS as a training aid. Title 14 of the Code of Federal Regulations (14 CFR) does require specific training for the PTS endorsements, but this should not be presented to the student at the end of the training. The CFI should take into consideration all of the



Figure 1-2. Practical Test Standards.

necessary training and strategically plan that training so the student has time to practice and prepare. It is the ultimate goal of the CFI to produce the safest, most competent pilot from his or her course of instruction and take pride in knowing that the student not only passed the test standards but exceeds those standards when conducting any and all helicopter procedures, on the ground or in the air.

## The Federal Aviation Administration (FAA)

### Role

It is imperative that a new student be introduced and become familiar with the role of the Federal Aviation Administration (FAA) in aviation. For the new student, this includes introducing him or her to the parts and subparts of 14 CFR that relate to flight training and pilot certification. To be included are pertinent handbooks, the PTS, and any references the CFI determines to be valuable to the student pilot learning experience. For transitioning pilots, the PTS for the helicopter is a key reference. The student should also be introduced to the Knowledge Test Guides that can be found at [www.faa.gov](http://www.faa.gov).

An online session at the FAA website provides the CFI with an opportunity to introduce the new student and/or transitioning pilot to the many resources now available around the clock. The site has easy-to-access handbooks, regulations, standards, manuals, references, and even online courses. With the advent of the Integrated Airman Certificate and/or Rating Application (IACRA), the FAA can process airman certification documents via the Internet, interfacing with multiple FAA national databases to validate data

and verify specific fields. IACRA automatically ensures applicants meet regulatory and policy requirements and forwards the FAA Form 8710-1 application and test results to the FAA Airmen Certification Branch. [Figure 1-3] While many younger students interface easily with the Internet, a CFI trains pilots of all ages. Ensuring the student is comfortable using the FAA’s Internet resources is part of a good training program.

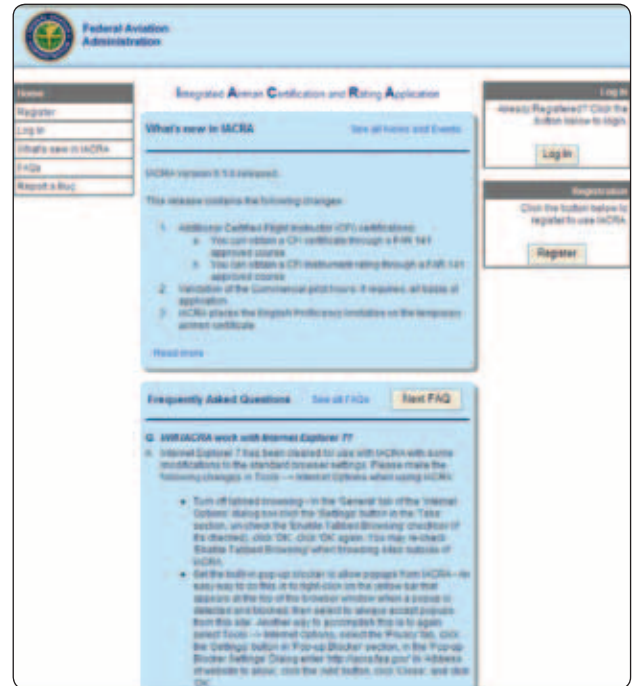


Figure 1-3. IACRA processes applications for airman certification via the Internet and automatically ensures applicants meet regulatory and policy requirements through programming rules and data validation.

### FAA Reference Material

The reference materials described below, as revised, can be used by the CFI to assemble a handout for the student. An example of such a handout can be found in Appendix A.

- Pilot’s Handbook of Aeronautical Knowledge (FAA-H-8083-25)—provides essential knowledge for pilots as they progress through pilot training. Useful to beginning pilots, as well as those pursuing more advanced certificates.
- Helicopter Flying Handbook (FAA-H-8083-21)—designed as a technical manual for applicants who are preparing for their private, commercial, or flight instructor pilot certificates with a helicopter class rating. The handbook contains detailed coverage of aerodynamics, flight controls, systems, performance, flight maneuvers, emergencies, and ADM specific to helicopter flight, which makes it a valuable training aid. Helicopters are rotorcraft as are gyroplanes.

Gyroplanes and helicopters are the two classes of aircraft in the rotorcraft category. Therefore, to differentiate between the classes of aircraft with different skill requirements, the FAA issues rotorcraft helicopter ratings or rotorcraft gyroplane ratings.

- Instrument Flying Handbook (FAA-H-8083-15)—designed for use by instrument flight instructors and pilots preparing for instrument rating tests, this handbook is a valuable training aid for CFIs as it includes basic reference material for knowledge testing and instrument flight training. [Figure 1-4]



**Figure 1-4.** The Instrument Flying Handbook is one of many training aids provided by the FAA Airman Testing Standards Branch.

- Risk Management Handbook (FAA-H-8083-2)—provides tools to help pilots determine and assess each situation for the safest possible flight with the least amount of risk. This handbook presents methods pilots can use to manage the workloads associated with each phase of flight, resulting in a safer, more enjoyable, and less stressful experience for both themselves and their passengers.
- Advanced Avionics Handbook (FAA-H-8083-6)—provides general aviation users with comprehensive information on the advanced avionics equipment available in technically advanced aircraft.
- Aeronautical Information Manual (AIM)—Chapter 10 of the AIM includes items that specifically pertain

to helicopter operations. The AIM also provides the aviation community with basic flight information and Air Traffic Control (ATC) procedures for use in the National Air Space (NAS) of the United States. It also contains items of interest to pilots concerning health/medical facts, factors affecting flight safety, etc.

- Airport/Facility Directory—containing information on public and joint use airports, communications, navigation aids, instrument landing systems, very high frequency (VHF) omnirange navigation system (VOR) receiver checkpoints, preferred routes, Automated Flight Service Station (AFSS)/Weather Service telephone numbers, Air Route Traffic Control Center (ARTCC) frequencies, part-time surface areas, and various other pertinent special notices essential to air navigation, the directory is now available in digital format at [www.faa.gov](http://www.faa.gov).
- Practical Test Standards—the Rotorcraft (Helicopter and Gyroplane) PTS establishes the standards for pilot certification practical tests for the rotorcraft category, helicopter, and gyroplane classes. FAA inspectors and designated pilot examiners (DPEs) conduct practical tests in compliance with these standards. Flight instructors and applicants should find these standards helpful during training and when preparing for the practical test. More detailed information can be found at [www.faa.gov](http://www.faa.gov). Refer the new student to page 3 of the PTS which provides a list of references used to compile the standards under which he or she is tested. This list identifies the publications that describe the various tasks that need to be mastered prior to the test. While explaining the PTS, be sure to review the Rotorcraft Practical Test Prerequisites.

An applicant for the Rotorcraft Practical Test is required by 14 CFR part 61 to:

1. Be able to read, speak, write, and understand the English language. (If there is a doubt, use Advisory Circular (AC) 60-28, English Language Skill Standards.)
2. Have passed the appropriate pilot knowledge test since the beginning of the 24th month before the month in which the practical test is completed.
3. Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed.
4. Possess a current Medical Certificate.
5. Have an endorsement from an authorized instructor certifying that the applicant has received and logged training time within 60 days preceding the date of application.