October 28, 2018

2018 FAA AIRMAN CERTIFICATION PRIVATE PILOT LICENSE STANDARDS

A DIGITAL COMPENDIUM FOR FLIGHT TRAINING AND CHECKRIDE PREPARATION. THE GUIDE FOR THE KNOWLEDGE, SKILLS, AND RISK MANAGEMENT ELEMENTS IN THE ACS.

Airplane, Single Engine Land (ASEL).

Note: ASES, AMES, AMEL omitted.

Comments and feedback: contact Mike Bowers CFII MEI cmbowers@aol.com

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FAA-S-ACS-6B ANNOTATED

THIS DOCUMENT IS SUBJECT TO CHANGE

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Why Use This Book?

The New ACS.

The FAA issued its Airman Certification Standards (ACS) for Private Pilots (PPL) in June 2018 as a replacement for the long-standing Practical Training Standards publication (PTS).

The ACS contains a structure of aviation tasks, knowledge, and elements to those tasks that are expected of applicants for the Private Pilot Certificate. This creates a clearer view of the twelve ACS Areas of Operation (AoO) materials tested by the FAA DPEs (designated pilot examiners).

The ACS (currently they exist for Private, Commercial certificates and Instrument rating) contains reference titles for each AOP, but this leads to some road blocks for students.

The Problem With The ACS

The ACS contains over 45 aviation-related references. Many of the FAA references are available for purchase as hardcopies via private publishers. Currently, the ACS requires the applicant to manually navigate between the recommended sources of information and then back to the ACS in order to continue studying. Take about time consuming! But why buy the hardcopies?

There is a better way to integrate all the “new” knowledge, risk management and skills contained in the ACS and the recommended references.

This eBook.

The Solution

This enhanced version of the ACS takes the reader directly to the necessary web documents. Readers use hyperlinks **WITHIN** this enhanced ACS document to launch directly to selected references appropriate for all the FAA Tasks, Knowledge, Risk Management and Skills information. Also, when certain FAA subjects are under-supported in its own publications, this enhanced version of the Private Pilot ACS takes you to well respected general aviation authors and publications.

This digital reference guide to the ppl ACS puts the FAA texts, graphics and discussion right onto your computer screen. This guide also contains the 8 Appendices present in the original FAA FAA-S-ACS-6B document.

Added Value

There is one more value-added item: you can navigate from a topic or sub-topic present in the ACS PPL to its source material and then return back to the TOC from each page.

Try it on the next page. Look at the bottom left corner. Pick a topic and click on it. Please note that this document is best read in the iBook or Adobe Acrobat Reader DC formats.

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Purpose of the ACS

From the FAA (highlighted for (emphasis)

The ACS is part of the safety management system (SMS) framework that the FAA uses to mitigate risks associated with airman certification training and testing. Specifically, the ACS, associated guidance, and test question components of the airman certification system are constructed around the four functional components of an SMS:
• Safety Policy that defines and describes aeronautical knowledge, flight proficiency, and risk management as integrated components of the airman certification system;
• Safety Risk Management processes through which both internal and external stakeholders identify changes in regulations, safety recommendations, or other factors. These changes are then evaluated to determine whether they require modification of airman testing and training materials;
• Safety Assurance processes to ensure the prompt and appropriate incorporation of changes arising from new regulations and safety recommendations; and
• Safety Promotion in the form of ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

The ACS integrates the elements of knowledge, risk management, and skill (“K, “R”, “S”) listed in 14 CFR part 61 for each airman certificate or rating. Currently there are an ACS for Private and for Commercial pilot certificates.

Overview on the FAA PPL practical test.

- Through the ground and flight portion of the practical test, the FAA expects evaluators to assess the applicant's mastery of the topic in accordance with the level of learning most appropriate for the specified Task.
- The oral questioning will continue throughout the entire practical test.
- For some topics, the evaluator will ask the applicant to describe or explain.
- For other items, the evaluator will assess the applicant's understanding by providing a scenario that requires the applicant to appropriately apply and/or correlate knowledge, experience, and information to the circumstances of the given scenario.
- The flight portion of the practical test requires the applicant to demonstrate knowledge, risk management, flight proficiency, and operational skill in accordance with the ACS.

Description of ACS structure and sections.

Areas of Operation. There are 12 Areas of Operation in the PPL ACS.

Tasks are appropriate to that Area of Operation. There are numerous Tasks described in most Areas of Operation. There are 45 Tasks listed in the ACS.

Objective stating what the applicant should know, consider and are detailed under each Task.

Knowledge (K), Risk Management (R), and Skills (S). The ACS then lists the aeronautical knowledge, risk management, and skills elements connected to the specific Task, along with the conditions and standards for acceptable performance.

Each **Task** in the ACS is coded for **Knowledge** according to a scheme that includes four ***elements***. The Knowledge Statement Codes (LSC) and Learning Statements are recorded on the Airman Knowledge Test Report (AKTR). This is a link to the FAA Reference Guides for LSC codes and statements. Some point in the future the FAA promises the ATKR to print out the ACS codes. Anyway…….

The FAA calls these the KNOW (Aeronautical), CONSIDER (ADM) and DO (flight proficiency) sections of each Area of Operation. The FAA Pilot Briefing on the ACS is here.

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For example:
PA.XI.A.K1:
PA = Applicable ACS (Private Pilot – Airplane)
XI = Area of Operation (Night Operations)
A = Task (Night Preparation)

K1 = Task element Knowledge 1 (Physiological aspects of night flying as it relates to vision.)

Notes to emphasize special considerations. “will” or “must” = mandatory; “may” = recommended but not required.

References for each Task indicate the source material for Task elements. For example, in Tasks such as “Weather products required for preflight planning, current and forecast weather for departure, en route, and arrival phases of flight.”

The applicant should be prepared for questions on **any** of the references outlined in each Area of Operation.

The applicant should also know how these will be tested by the examiner:

The evaluator’s written Plan of Action must include:

- At least one Knowledge Element
- At least one Risk Management Element
- All Skill Elements from required Tasks
- All subjects missed on the knowledge test

• The evaluator may use Task Elements from missed knowledge test subjects to meet the minimum requirement for one Knowledge and one Risk management element.

• As with the PTS, evaluators have the discretion to select additional elements if the knowledge test report or the applicant’s response to questions indicates weakness in a given Task.

Applicant Responsibilities

The applicant is responsible for mastering the established standards for knowledge, skill, and risk management elements in all Tasks appropriate to the certificate and rating sought. The applicant should use this ACS, its references, and the Practical Test Checklist in this Appendix in preparation to take the practical test.

Instructor Responsibilities

The instructor is responsible for training the applicant to meet the established standards for knowledge, skill, and risk management elements in all Tasks appropriate to the certificate and rating sought. The instructor should use this ACS and its references as part of preparing the applicant to take the practical test and, if necessary, in retraining the applicant to proficiency in all subject(s) missed on the knowledge test.

Test failure factors

The evaluator or the applicant must end the test if the applicant fails a Task. • Any action or lack of action by the applicant that requires corrective intervention by the evaluator to maintain safe flight. Examples include:

• Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
• Consistently exceeding tolerances stated in the skill elements of the Task.
• Failure to take prompt corrective action when tolerances are exceeded.
• Failure to exercise risk management.

Discontinuance

When it is necessary to discontinue a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator must return all test paperwork to the applicant.

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The evaluator must prepare, sign, and issue a Letter of Discontinuance that lists those Areas of Operation (AoO) the applicant successfully completed and the time period remaining to complete the test. The evaluator should advise the applicant to present the Letter of Discontinuance to the evaluator when the practical test resumes in order to receive credit for the items successfully completed. The Letter of Discontinuance becomes part of the applicant's certification file.

Resources

The ACS relies heavily on a few major FAA publications. Unfortunately, the ACS only lists the entire /publication document which may have hundreds of pages. Contributing material for some Area of Operations and their subsections are FAA “Aviation Circulars” (AC-00-00) that focuses on specific Knowledge, Risk and Skills information. There are links to each of these FAA publications throughout this document.

Value added content.

Specific topic “discussions” and additional information links have also been added to the AoO elements sections. These are from both FAA and non-FAA sources such as the AOPA’s Air Safety Institute and are valuable “nuts-and-bolts” topics providing simplified explanations to important PPL information.

Note: All these resources are available by double clicking on the hyperlinks seen throughout this document. Each page, on the lower left corner, has a return to the “Table of Contacts” link which allows the reader to move onto other topics in the ACS.

The FAA publications most often referenced in the ACS are:

- FAA Pilot Applicant Briefing on the ACS is here
- FAA tips for Pilot Examiners about using the ACS
- Pilots Handbook of Aeronautical Knowledge FAA-H-8083-25B
- Certification: Pilots, Flight Instructors, and Ground Instructors FAR Part 61
- FAA General Operation and Flight Rules – Part 91
- FARs for aviation (eCFR) FAA policies and regulations. This includes Parts 61 and 91. Aeronautical Information Manual (AIM). Basic Flight Information and ATC Procedures.
- Pilots Weather Handbook AC-00-6B
- Aviation Weather Services AC-00-45G
- FAA Risk Management Handbook FAA-H- 8083-2
- Chart Supplements (d-CS)
- Notam Search
- Weight and Balance Handbook FAA-H-8083-1
- Airplane Flying Handbook FAA-H-8083-3
- Single Pilot Taxi Operations AC 91-73
- Stall and Spin Awareness Training AC 61-67
- Certification requirements (private pilot)
- Currency requirements
- Pilot logbooks

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- Private pilot Privileges and Limitations
- Medical certificates
- Medical certification expiration
- PIC under Visual Flight Rules (VFR)
- Aircraft Registration
- Airworthiness and Airworthiness Directives Part 39
- Authorized Maintenance Part 43

ACS for Private Pilot Airplane

I. Preflight Preparation Tasks

A. Pilot Qualifications

References	14 CFR parts 61, 68, 91; FAA-H-8083-2, FAA-H-8083-25
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with airman and medical certificates including privileges, limitations, currency, and operating as pilot-in-command (PIC) as a private pilot.
Knowledge	The applicant demonstrates understanding of:
PA.I.A.K1	Certification requirements, currency, and record keeping.
PA.I.A.K2	Privileges and limitations.
PA.I.A.K3	Medical certificates: class, expiration, privileges, temporary disqualifications.
PA.I.A.K4	Documents required to exercise private pilot privileges.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.I.A.R1	Failure to distinguish proficiency versus currency.
PA.I.A.R2	Failure to set personal minimums.
PA.I.A.R3	Failure to ensure fitness for flight.
PA.I.A.R4	Flying unfamiliar aircraft, or operating with unfamiliar flight display systems, and avionics.
Skills	The applicant demonstrates the ability to:
PA.I.A.S1	Apply requirements to act as PIC under Visual Flight Rules (VFR) in a scenario given by the evaluator.

Links:

Pilot certification requirements , Currency requirements, Pilot logbooks, Private Pilot Privileges and Limitations, Medical certificates, Medical certification expiration, Visual Flight Rules (VFR) , Certification: Pilots, Flight Instructors, and Ground Instructors Part 61, Aviation Medical Examiner (AME) guidelines, How to become a private pilot, Transitioning to different aircraft.

I. Preflight Preparation Task

B. Airworthiness Requirements

References	14 CFR parts 39, 43, 91; FAA-H-8083-2, FAA-H-8083-25
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with airworthiness requirements, including aircraft certificates.
Knowledge	The applicant demonstrates understanding of:
PA.I.B.K1	General airworthiness requirements and compliance for airplanes, including:
PA.I.B.K1a	a. Certificate location and expiration dates

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PA.I.B.K1b	b. Required inspections and aircraft logbook documentation
PA.I.B.K1c	c. Airworthiness Directives and Special Airworthiness Information Bulletins
PA.I.B.K1d	d. Purpose and procedure for obtaining a special flight permit
PA.I.B.K2	Pilot-performed preventive maintenance.
PA.I.B.K3	Equipment requirements for day and night VFR flight, to include:
PA.I.B.K3a	a. Flying with inoperative equipment
PA.I.B.K3b	b. Using an approved Minimum Equipment List (MEL)
PA.I.B.K3c	c. Kinds of Operation Equipment List (KOEL)
PA.I.B.K3d	d. Required discrepancy records or placards
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.I.B.R1	Inoperative equipment discovered prior to flight.
Skills	The applicant demonstrates the ability to:
PA.I.B.S1	Locate and describe aircraft airworthiness and registration information.
PA.I.B.S2	Determine the aircraft is airworthy in a scenario given by the evaluator.
PA.I.B.S3	Apply the procedures for operating with inoperative equipment in a scenario given by the evaluator. FAA major/minor aircraft repairs FARs (part 43)

Links

Airworthiness overview, Aircraft Registration, Airworthiness and Airworthiness Directives Part 39, Airworthiness discussion, Search engine for FAA AD notices, Authorized Maintenance Part 43, FAA General Operation and Flight Rules – Part 91, FAA Risk Management Handbook FAA-H- 8083-2, Pilots Handbook of Aeronautical Knowledge FAA-H-8083-25B, FAA Oxygen System Requirements, Minimum Equipment List discussion, Special flight permit, TOMATOE A FLAMES mnemonic.

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I. Preflight Preparation

Task

C. Weather Information

References

14 CFR part 91; FAA-H-8083-25; AC 00-6, AC 00-45; AIM

Objective

To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with weather information for a flight under VFR. ADM

Knowledge

The applicant demonstrates understanding of:

PA.I.C.K1 Acceptable sources of weather data for flight planning purposes.

PA.I.C.K2 Weather products required for preflight planning, current and forecast weather for departure, en route, and arrival phases of flight.

PA.I.C.K3 Meteorology applicable to the departure, en route, alternate, and destination under VFR in Visual Meteorological Conditions (VMC) to include expected climate and hazardous conditions such as:

PA.I.C.K3a a. Atmospheric composition and stability (this resource applies to K3a through K3k).

PA.I.C.K3b b. Wind (e.g., crosswind, tailwind, wind shear, etc.)

PA.I.C.K3c c. Temperature

PA.I.C.K3d d. Moisture/precipitation

PA.I.C.K3e e. Weather system formation, including air masses and fronts

PA.I.C.K3f f. Clouds

PA.I.C.K3g g. Turbulence

PA.I.C.K3h h. Thunderstorms and microburst

PA.I.C.K3i i. Icing and freezing level information

PA.I.C.K3j j. Fog

PA.I.C.K3k k. Frost

PA.I.C.K4 Flight deck displays of digital weather and aeronautical information.

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	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
Risk Management	
PA.I.C.R1	Factors involved in making the go/no go and continue/divert decisions, to include:
PA.I.C.R1a	a. Circumstances that would make diversion prudent
PA.I.C.R1b	b. Personal weather minimums
PA.I.C.R2	Limitations of:
PA.I.C.R2a	a. Onboard weather equipment
PA.I.C.R2b	b. Aviation weather reports and forecasts
PA.I.C.R2c	c. Inflight weather resources TAFS, FSS
Skills	The applicant demonstrates the ability to:
PA.I.C.S1	Use available aviation weather resources to obtain an adequate weather briefing.
PA.I.C.S2	Discuss the implications of at least three of the conditions listed in K3a through K3k above, using actual weather or weather conditions in a scenario provided by the evaluator.
PA.I.C.S3	Correlate weather information to make a go/no-go decision.

Links

Weather Theory, FAA General Operation and Flight Rules – Part 91, Pilots Handbook of Aeronautical Knowledge, Aviation Weather Systems Chapter 13, Pilots Weather Handbook AC-00-6B, Aviation Weather Services AC-00-45G, Inflight Weather Planning Resources, Aeronautical Decision-Making, VFR into IMC discussions (AOPA AirSafety Institute), Personal weather minimums (FAA Aviation Safety), Crosswind landing discussion.

I. Preflight Preparation

Task D. Cross-Country Flight Planning

References 14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts; Chart Supplements; AIM; NOTAMS

Objective To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with cross-country flights and VFR flight planning.

Knowledge The applicant demonstrates understanding of:

PA.I.D.K1 Route planning, to include consideration of different classes and special use airspace and selection of appropriate navigation/communication systems and facilities.

PA.I.D.K2 Altitude selection accounting for terrain and obstacles, glide distance of aircraft, VFR cruising altitudes, and the effect of wind.

PA.I.D.K3 Calculating:

PA.I.D.K3a a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed

PA.I.D.K3b b. Estimated time of arrival to include conversion to universal coordinated time (UTC)

PA.I.D.K3c c. Fuel requirements, to include reserve

PA.I.D.K4 Elements of a VFR flight plan.

PA.I.D.K5 Procedures for activating and closing a VFR flight plan.

Risk Management The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:

PA.I.D.R1 Pilot PAVE Info continues from R1 to R4

PA.I.D.R2 Aircraft.

PA.I.D.R3 Environment (e.g., weather, airports, airspace, terrain, obstacles).

PA.I.D.R4 External pressures.

PA.I.D.R5 Limitations of air traffic control (ATC) services.

PA.I.D.R6 Improper fuel planning.

Skills The applicant demonstrates the ability to:

PA.I.D.S1 Prepare, present and explain a cross-country flight plan assigned by the evaluator including a risk analysis based on real-time weather, to the first fuel stop.

PA.I.D.S2 Apply pertinent information from appropriate and current aeronautical charts, chart supplements; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.

PA.I.D.S3 Create a navigation log and simulate filing a VFR flight plan.

PA.I.D.S4 Recalculate fuel reserves based on a scenario provided by the evaluator.

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Links:

FAA General Operation and Flight Rules – Part 91, Risk Management Handbook FAA-H-8083-2, Pilots Handbook of Aeronautical Knowledge FAA-H-8083-25B, FAR/AIM, Chart Supplements (d-CS), Notam Search, , iPad Weather apps.

I. Preflight Preparation

Task	E. National Airspace System
References	14 CFR parts 71, 91, 93; FAA-H-8083-2; Navigation Charts; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the National Airspace System (NAS) operating under VFR as a private pilot.
Knowledge	The applicant demonstrates understanding of:
PA.I.E.K1	Types of airspace/airspace classes and associated requirements and limitations. (overview)
PA.I.E.K2	Charting symbology.
PA.I.E.K3	Special use airspace (SUA), special flight rules areas (SFRA), temporary flight restrictions (TFR), and other airspace areas.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.I.E.R1	Various classes of airspace.
Skills	The applicant demonstrates the ability to:
PA.I.E.S1	Explain the requirements for basic VFR weather minimums and flying in particular classes of airspace, to include SUA, SFRA, and TFR.
PA.I.E.S2	Correctly identify airspace and operate in accordance with associated communication and equipment requirements.

Links:

NAS overview, National Airspace System Part 71, Classes of Airspace PHAK Chapter 15, FAR 91, Special Air Traffic Rules Part 93, Risk Management Handbook, FAA Aeronautical Chart User's Guide, FAR/AIM,

I. Preflight Preparation

Task F. Performance and Limitations

References FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM

Objective To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within the parameters of its performance capabilities and limitations.

Knowledge

PA.I.F.K1 The applicant demonstrates understanding of: Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance. This resource applies to K2a to K2f.

PA.I.F.K2 Factors affecting performance to include:

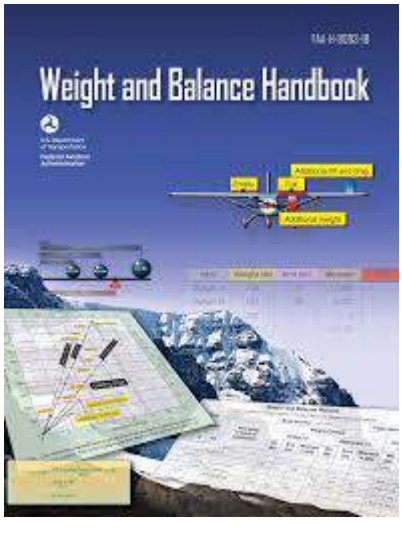
PA.I.F.K2a a. Atmospheric conditions

PA.I.F.K2b b. Pilot technique

PA.I.F.K2c c. Aircraft condition

PA.I.F.K2d d. Airport environment

PA.I.F.K2e e. Loading



PA.I.F.K2f f. Weight and balance

PA.I.F.K3 Aerodynamics.

Risk Management The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:

PA.I.F.R1 Inaccurate use of manufacturer's performance charts, tables and data.

PA.I.F.R2 Exceeding aircraft limitations.

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PA.I.F.R3 Possible differences between actual aircraft performance and published aircraft performance data.

Skills

The applicant demonstrates the ability to:

PA.I.F.S1 Compute the weight and balance, correct out-of-center of gravity (CG) loading errors and determine if the weight and balance remain within limits during all phases of flight.

PA.I.F.S2 Demonstrate use of the appropriate aircraft manufacturer's approved performance charts, tables and data. (web search for Cessna POH's).

Links

Weight and Balance Handbook FAA-H-8083-1, Risk Management Handbook FAA-H-8083-2, Airplane Flying Handbook FAA-H-8083-3, Pilot Handbook of Aeronautical Knowledge FAA-H-8083-25, Aircraft Performance (PHAK Chapter 11), Density Altitude FAA-P-8740-A, Misuse of aircraft performance information (Human Factors), Aircraft operating limitations., Aerodynamics.

I. Preflight Preparation

Task G. Operation of Systems

References FAA-H-8083-2, FAA-H-8083-3, ~~FAA-H-8083-23~~, FAA-H-8083-25; POH/AFM.

Objective To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the safe operation of systems on the airplane provided for the flight test.

Knowledge

The applicant demonstrates understanding of:

PA.I.G.K1 Aircraft systems to include: The resources for aspects of K1 to K1l.are: Aircraft Systems; Flight Instruments.

PA.I.G.K1a a. Primary flight controls and trim

PA.I.G.K1b b. Secondary flight controls

Name	Location	Function
Flaps	Inboard trailing edge of wings	Extends the camber of the wing for greater lift and slower flight. Allows control at low speeds for short field takeoffs and landings.
Trim tabs	Trailing edge of primary flight control surfaces	Reduces the force needed to move a primary control surface.

PA.I.G.K1c c. Powerplant and propeller

PA.I.G.K1d d. Landing gear

PA.I.G.K1e e. Fuel, oil, and hydraulic

PA.I.G.K1f f. Electrical

PA.I.G.K1g g. Avionics

PA.I.G.K1h

	h. Pitot-static, vacuum/pressure, and associated flight instruments
PA.I.G.K1i	i. Environmental
PA.I.G.K1j	j. Deicing and anti-icing
PA.I.G.K1k	
PA.I.G.K1l	l. Oxygen system
PA.I.G.K2	Indications of system abnormalities or failures.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.I.G.R1	Failure to identify system malfunctions or failures.
PA.I.G.R2	Improper handling of a system failure.
PA.I.G.R3	Failure to monitor and manage automated systems.
Skills	The applicant demonstrates the ability to:
PA.I.G.S1	Explain and operate at least three of the systems listed in K1a through K1l above.
PA.I.G.S2	Properly use appropriate checklists. (page 4).

Links

FAA-H-8083-2, FAA-H-8083-3, ~~FAA-H-8083-23~~, FAA-H-8083-25, POH/AFM, FAA Advanced Avionics Handbook Oxygen Systems, Flight Instruments PHAK Chapter 10, Flight Systems., Identifying and managing aircraft system failures.

I. Preflight Preparation

Task	H. Human Factors
References	FAA-H-8083-2, FAA-H-8083-25; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with personal health, flight physiology, aeromedical and human factors, as it relates to safety of flight. Applies to H.K1 to H.K3. ***Note:*** *See Appendix 6: Safety of Flight.*
Knowledge	The applicant demonstrates understanding of:
PA.I.H.K1	Symptoms, recognition, causes, effects, and corrective actions associated with aeromedical and physiological issues including:
PA.I.H.K1a	a. Hypoxia
PA.I.H.K1b	b. Hyperventilation
PA.I.H.K1c	c. Middle ear and sinus problems
PA.I.H.K1d	

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	d. Spatial disorientation
PA.I.H.K1e	e. Motion sickness
PA.I.H.K1f	f. Carbon monoxide poisoning
PA.I.H.K1g	g. Stress and fatigue
PA.I.H.K1h	h. Dehydration and nutrition
PA.I.H.K1i	i. Hypothermia
PA.I.H.K1j	j. Optical illusions
PA.I.H.K1k	k. Dissolved nitrogen in the bloodstream after scuba dives
PA.I.H.K2	Regulations regarding use of alcohol and drugs.
PA.I.H.K3	Effects of alcohol, drugs, and over-the-counter medications.
PA.I.H.K4	Aeronautical Decision-Making (ADM).
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks encompassing:
PA.I.H.R1	Aeromedical and physiological issues.
PA.I.H.R2	Hazardous attitudes.
PA.I.H.R3	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.I.H.S1	Describe symptoms, recognition, causes, effects, and corrective actions for at least three of the conditions listed in K1a through K1k above.
PA.I.H.S2	Perform self-assessment, including fitness for flight and personal minimums, for actual flight or a scenario given by the evaluator.

Links

FAA-H-8083-2, FAA-H-8083-25, AIM, Aeromedical Factors, FAA Aircraft Safety Programs, Aeronautical Decision Making.

II. Preflight Procedures Tasks

A. Preflight Assessment

References	FAA-H-8083-2, FAA-H-8083-3, ~~FAA-H-8083-23~~; POH/AFM; AC 00-6

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Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with preparing for safe flight.
Knowledge	The applicant demonstrates understanding of:
PA.II.A.K1	Pilot self-assessment. PAVE
PA.II.A.K2	Determining that the aircraft to be used is appropriate, airworthy, and in a condition for safe flight. Applies to K3a to K3d.
PA.II.A.K3	Aircraft preflight inspection including: Ground operations.
PA.II.A.K3a	a. Which items must be inspected
PA.II.A.K3b	b. The reasons for checking each item
PA.II.A.K3c	c. How to detect possible defects
PA.II.A.K3d	d. The associated regulations
PA.II.A.K4	Environmental factors including weather, terrain, route selection, and obstructions. Cross country planning.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.II.A.R1	Pilot. PAVE Continues R1 through R4
PA.II.A.R2	Aircraft.
PA.II.A.R3	Environment (e.g., weather, airports, airspace, terrain, obstacles).
PA.II.A.R4	External pressures.
PA.II.A.R5	Aviation security concerns.
Skills	The applicant demonstrates the ability to:
PA.II.A.S1	Inspect the airplane with reference to an appropriate checklist.
PA.II.A.S2	Verify the airplane is airworthy and in condition for safe flight.

Links

FAA-H-8083-2, FAA-H-8083-3, FAA Ground Operations, Seaplane Handbook ~~FAA-H-8083-23~~, POH/AFM, Aviation Weather AC 00-6, Preflight Inspections and Flight Safety discussion, Checklist Usage discussion, PAVE safety checklist, Airport Obstruction Charts, Plan a VFR Cross Country Flight, Aviation Weather.

II. Preflight Procedures

Task	B. Flight Deck Management
References	FAA-H-8083-2, FAA-H-8083-3; AC 120-71; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe flight deck management practices.
Knowledge	The applicant demonstrates understanding of:

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PA.II.B.K1	Passenger briefing requirements, to include operation and required use of safety restraint systems.
PA.II.B.K2	Use of appropriate checklists.
PA.II.B.K3	Requirements for current and appropriate navigation data.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.II.B.R1	Improper use of systems or equipment, to include automation and portable electronic devices.
PA.II.B.R2	Flying with unresolved discrepancies.
Skills	The applicant demonstrates the ability to:
PA.II.B.S1	Secure all items in the flight deck and cabin.
PA.II.B.S2	Conduct an appropriate pre-takeoff briefing, to include identifying the PIC, use of safety belts, shoulder harnesses, doors, sterile flight deck, and emergency procedures.
PA.II.B.S3	Properly program and manage aircraft automation.

Links

FAA-H-8083-2, FAA-H-8083-3, Standard Operating Procedures and Pilot Monitoring Duties for Flight Deck Crew Members AC 120-71, Checklist Usage discussion, PAVE safety checklist, POH/AFM, Flight Management Systems, FAA Electronic Flight Bag Update.

II. Preflight Procedures

Task	C. Engine Starting
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with recommended engine starting procedures.
Knowledge	The applicant demonstrates understanding of:
PA.II.C.K1	Starting under various atmospheric conditions.
PA.II.C.K2	Starting the engine(s) by use of external power.
PA.II.C.K3	Engine limitations as they relate to starting.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.II.C.R1	Propeller safety.
Skills	The applicant demonstrates the ability to:
PA.II.C.S1	Position the airplane properly considering structures, other aircraft, wind, and the safety of nearby persons and property.
PA.II.C.S2	Use the appropriate checklist for engine start procedure.

Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25, POH/AFM, FAA Ground Operations, Propeller ground safety, Aircraft Systems, How to safely hand prop a low compression engine.

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II. Preflight Procedures

Task — D. Taxiing (ASEL, AMEL)

References — FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM; AC 91-73; Chart Supplements; AIM

Objective — To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxi operations, including runway incursion avoidance.

Knowledge	The applicant demonstrates understanding of:
PA.II.D.K1	FAA Ground Operations.
PA.II.D.K2	Current airport aeronautical references and information resources including chart supplements, airport diagram, and appropriate references.
PA.II.D.K3	Taxi instructions/clearances.
PA.II.D.K4	Airport markings, signs, and lights.
PA.II.D.K5	Visual indicators for wind.
PA.II.D.K6	Aircraft lighting.
PA.II.D.K6a	Procedures for: a. Appropriate flight deck activities during taxiing including taxi route planning, briefing the location of Hot Spots, communicating and coordinating with ATC
PA.II.D.K6b	b. Safe taxi at towered and non-towered airports
PA.II.D.K6c	c. Entering or crossing runways
PA.II.D.K6d	d. Night taxi operations
PA.II.D.K6e	e. Low visibility taxi operations
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing: Resource for D.S1 to D.S10.
PA.II.D.R1	Inappropriate activities and distractions.
PA.II.D.R2	Confirmation or expectation bias as related to taxi instructions.
Skills	The applicant demonstrates the ability to:
PA.II.D.S1	Complete the checklist, as appropriate to the aircraft.
PA.II.D.S2	Perform a brake check immediately after the airplane begins moving.
PA.II.D.S3	Position the flight controls properly for the existing wind conditions.
PA.II.D.S4	Control direction and speed without excessive use of brakes.
PA.II.D.S5	Maintain positive control of the airplane during ground operations.
PA.II.D.S6	Properly position the aircraft relative to hold lines.

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PA.II.D.S7	Receive and correctly read back clearances/instructions.
PA.II.D.S8	Exhibit situational awareness.
PA.II.D.S9	Use an airport diagram or taxi chart during taxi.
PA.II.D.S10	Comply with airport/taxiway markings, signals, ATC clearances and instructions.

Links

FAA Ground Operations, Runway Safety Best Practices Brochure, FAA-H-8083-2, FAA-H-8083-3 , FAA-H-8083-25, POH/AFM/AIM, Single Pilot Taxi Operations AC 91-73, Chart Supplements, Runway safety and Airport safety discussion, Runway markings Quick Guide.

II. Preflight Procedures

Task	F. Before Takeoff Check
References	FAAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the before takeoff check.
Knowledge	The applicant demonstrates understanding of:
PA.II.F.K1	Purpose of pre-takeoff checklist items including:
PA.II.F.K1a	a. Reasons for checking each item
PA.II.F.K1b	b. Detecting malfunctions
PA.II.F.K1c	c. Ensuring the airplane is in safe operating condition as recommended by the manufacturer
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.II.F.R1	Division of attention while conducting pre-flight checks.
PA.II.F.R2	Unexpected runway changes by ATC.
PA.II.F.R3	Wake turbulence.
Skills	The applicant demonstrates the ability to:
PA.II.F.S1	Review takeoff performance.
PA.II.F.S2	Complete the appropriate checklist.
PA.II.F.S3	Properly position the airplane considering other aircraft, vessels, and wind.
PA.II.F.S4	Divide attention inside and outside the flight deck.
PA.II.F.S5	Verify that engine temperature(s) and pressure(s) are suitable.

Links

FAAA-H-8083-2, FAA-H-8083-3, POH/AFM, Runway safety brochure, AOPA "Before Take-Off Checklist"

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III. Airport Operations Tasks

A. Communications and Light Signals

References	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal and emergency radio communications and ATC light signals to conduct radio communications safely while operating the aircraft.
Knowledge	The applicant demonstrates understanding of: FAASafety.gov radio communication. Applies to A.K1 and A.K2.
PA.III.A.K1	How to obtain proper radio frequencies.
PA.III.A.K2	Proper radio communication procedures and ATC phraseology.
PA.III.A.K3	ATC light signal recognition. Communication failures.
PA.III.A.K4	Appropriate use of transponders.
PA.III.A.K5	Lost communication procedures.
PA.III.A.K6	Equipment issues that could cause loss of communications.
PA.III.A.K7	Radar assistance.
PA.III.A.K8	National Transportation Safety Board (NTSB) accident/incident reporting.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.III.A.R1	Poor communication.
PA.III.A.R2	Failure to recognize and declare an emergency.
PA.III.A.R3	Confirmation or expectation bias. Canadian Business Aviation Association
Skills	The applicant demonstrates the ability to:
PA.III.A.S1	Select appropriate frequencies.
PA.III.A.S2	Transmit using phraseology and procedures as specified in the AIM. Class D comms.
PA.III.A.S3	Acknowledge radio communications and comply with instructions.

Links

14 CFR part 91. FAA-H-8083-2, FAA-H-8083-25' AIM, ATC Live communications Pilot communications and ATC (AOPA training programs), Pilot/Controller Communication Glossary, FAA Emergency communication procedures, Emergency Procedures (FAA AFH Chapter 17), NTSB Accident Reporting, Light signal recognition chart, Legal advice about aircraft accident statements, Declaring An Emergency – NASA, Aviation expectational bias. ELT operation.

III. Airport and ~~Seaplane Base~~ Operations
19 **Task**

B. Traffic Patterns

References	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with traffic patterns. FAA Airport Traffic Patterns.
Knowledge	The applicant demonstrates understanding of:
PA.III.B.K1	Towered and non-towered airport operations.
PA.III.B.K2	Runway selection for the current conditions.
PA.III.B.K3	Right-of-way rules.

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PA.III.B.K4	Use of automated weather and airport information.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.III.B.R1	Collision hazards to include aircraft, terrain, obstacles, and wires.
PA.III.B.R2	Distractions, loss of situational awareness, and/or improper task management.
PA.III.B.R3	Wake turbulence and/or wind shear.
Skills	The applicant demonstrates the ability to:
PA.III.B.S1	Properly identify and interpret airport/seaplane base runways, taxiways, markings, signs, and lighting.
PA.III.B.S2	Comply with recommended traffic pattern procedures.
PA.III.B.S3	Correct for wind drift to maintain the proper ground track.
PA.III.B.S4	Maintain orientation with the runway/landing area in use.
PA.III.B.S5	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.
PA.III.B.S6	Maintain situational awareness and proper spacing from other aircraft in the traffic pattern.

Links

14 CFR part 91, FAA-H-8083-2, FAA-H-8083-25, AIM

Traffic pattern skills, FAA non tower operations AC 90-66B, Control tower procedures, Loss of situational awareness, FAA Runway Safety, Aircraft Wake Turbulence AC-93-23G, Airfield Standards Quick Reference, FAA markings and signs, FAA Automated Weather Stations.

IV. Takeoffs, Landings, and Go-Arounds Tasks

A. Normal Takeoff and Climb

References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a normal takeoff, climb operations, and rejected takeoff procedures. ***Note:*** *If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.*
Knowledge	The applicant demonstrates understanding of:
PA.IV.A.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
PA.IV.A.K2	VX and VY.
PA.IV.A.K3	Appropriate aircraft configuration. FAA Approaches and Landings.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.A.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.A.R2	Effects of:
PA.IV.A.R2a	a. Crosswind, to include exceeding maximum demonstrated crosswind component

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PA.IV.A.R2b	b. Wind shear (NOAA)
PA.IV.A.R2c	c. Tailwind landings (AVEMCO Insurance)
PA.IV.A.R2d	d. Wake turbulence
PA.IV.A.R2e	e. Runway surface/condition/length
PA.IV.A.R3	Abnormal operations, to include planning for:
PA.IV.A.R3a	a. Rejected takeoff (and landings).
PA.IV.A.R3b	b. Engine failure in takeoff/climb phase of flight
PA.IV.A.R4	Collision hazards to include aircraft, terrain, obstacles, and wires. CFIT.
PA.IV.A.R5	Low altitude maneuvering/stall/spin.
PA.IV.A.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to: FAA Takeoffs And Departure Climbs. Applies to A.S1 to A.S14.
PA.IV.A.S1	Complete the appropriate checklist.
PA.IV.A.S2	Make radio calls as appropriate.
PA.IV.A.S3	Verify assigned/correct runway.
PA.IV.A.S4	Ascertain wind direction with or without visible wind direction indicators.
PA.IV.A.S5	Position the flight controls for the existing wind conditions.
PA.IV.A.S6	Clear the area; taxi into the takeoff position and align the airplane on the runway centerline (ASEL, ~~AMEL)~~ or takeoff path ~~(ASES, AMES).~~
PA.IV.A.S7	Confirm takeoff power; and proper engine and flight instrument indications prior to rotation (ASEL, ~~AMEL).~~
PA.IV.A.S8	Rotate and lift off at the recommended airspeed and accelerate to VY.
PA.IV.A.S9	Retract the water rudders, as appropriate, establish and maintain the most efficient planing/liftoff attitude, and correct for porpoising and skipping (ASES, ~~AMES)~~.
PA.IV.A.S10	Establish pitch attitude to maintain the manufacturer's recommended speed, or VY+10/-5 knots.
PA.IV.A.S11	Retract the landing gear and flaps in accordance with manufacturer's guidance.
PA.IV.A.S12	Maintain VY+10/-5 knots to a safe maneuvering altitude.
PA.IV.A.S13	Maintain directional control and proper wind drift correction throughout takeoff and climb.
PA.IV.A.S14	Comply with noise abatement procedures.

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Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23, POH/AFM. Density Altitude, VX and VY discussion, Cross wind component discussion, Rejected landings discussion, Engine failures after takeoffs, Stall spin awareness, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

IV. Takeoffs, Landings, and Go-Arounds

Task	B. Normal Approach and Landing
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a normal approach and landing with emphasis on proper use and coordination of flight controls. ***Note:*** *If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.*
Knowledge	The applicant demonstrates understanding of:
PA.IV.B.K1	A stabilized approach, to include energy management concepts.
PA.IV.B.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
PA.IV.B.K3	Wind correction techniques on approach and landing.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.B.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind. FAA Approach and Landings.
PA.IV.B.R2	Effects of:
PA.IV.B.R2a	a. Crosswind, to include exceeding maximum demonstrated crosswind component
PA.IV.B.R2b	b. Wind shear
PA.IV.B.R2c	c. Tailwind
PA.IV.B.R2d	d. Wake turbulence
PA.IV.B.R2e	e. Runway surface/condition
PA.IV.B.R3	Abnormal operations, to include planning for:
PA.IV.B.R3a	a. Rejected landing and go-around
PA.IV.B.R3b	b. Land and hold short operations (LAHSO)

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PA.IV.B.R4	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.B.R5	Low altitude maneuvering/stall/spin.
PA.IV.B.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.B.S1	Complete the appropriate checklist.
PA.IV.B.S2	Make radio calls as appropriate.
PA.IV.B.S3	Ensure the aircraft is aligned with the correct/assigned runway (ASEL).
PA.IV.B.S4	Scan the landing runway and adjoining area for traffic and obstructions (ASEL).
PA.IV.B.S5	Consider the wind conditions, landing surface, obstructions, and select a suitable touchdown point (ASES).
PA.IV.B.S6	Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required to maintain a stabilized approach.
PA.IV.B.S7	Maintain manufacturer's recommended approach airspeed, or in its absence, not more than 1.3 VSO, +10/-5 knots, or as recommended for the aircraft type and gust velocity.
PA.IV.B.S8	Maintain crosswind correction and directional control throughout the approach and landing.
PA.IV.B.S9	Make smooth, timely, and correct control inputs during round out and touchdown.
PA.IV.B.S10	Touch down at speed recommended by manufacturer (ASEL), or during round out and touchdown ~~to contact the water at the proper pitch attitude (ASES, AMES~~).
PA.IV.B.S11	Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
PA.IV.B.S12	Utilize runway incursion avoidance procedures.

Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23, POH/AFM, Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Rejected landings discussion, Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

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IV. Takeoffs, Landings, and Go-Arounds

C. Soft-Field Takeoff and Climb (ASEL)

Task	
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a soft-field takeoff, climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of:
PA.IV.C.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
PA.IV.C.K2	VX and VY.
PA.IV.C.K3	Appropriate aircraft configuration.
PA.IV.C.K4	Ground effect.
PA.IV.C.K5	Importance of weight transfer from wheels to wings.
PA.IV.C.K6	Left turning tendencies.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.C.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.C.R2	Effects of:
PA.IV.C.R2a	a. Crosswind
PA.IV.C.R2b	b. Wind shear
PA.IV.C.R2c	c. Tailwind
PA.IV.C.R2d	d. Wake turbulence
PA.IV.C.R2e	e. Runway surface/condition
PA.IV.C.R3	Abnormal operations, to include planning for:
PA.IV.C.R3a	a. Rejected takeoff
PA.IV.C.R3b	b. Engine failure in takeoff/climb phase of flight
PA.IV.C.R4	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.C.R5	Low altitude maneuvering/stall/spin.
PA.IV.C.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.C.S1	Complete the appropriate checklist.
PA.IV.C.S2	Make radio calls as appropriate.
PA.IV.C.S3	Verify assigned/correct runway.
PA.IV.C.S4	Ascertain wind direction with or without visible wind direction indicators.
PA.IV.C.S5	Position the flight controls for the existing wind conditions.
PA.IV.C.S6	Clear the area, taxi into takeoff position and align the airplane on the runway centerline without

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	stopping, while advancing the throttle smoothly to takeoff power.
PA.IV.C.S7	Confirm takeoff power and proper engine and flight instrument indications prior to rotation.
PA.IV.C.S8	Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.
PA.IV.C.S9	Lift off at the lowest possible airspeed and remain in ground effect while accelerating to VX or VY, as appropriate.
PA.IV.C.S10	Establish a pitch attitude for VX or VY, as appropriate, and maintain selected airspeed +10/-5 knots during the climb.
PA.IV.C.S11	Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
PA.IV.C.S12	Maintain VX or VY +10/-5 knots to a safe maneuvering altitude.
PA.IV.C.S13	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
PA.IV.C.S14	Comply with noise abatement procedures.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Soft and short field takeoffs, Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Rejected landings discussion, Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

IV. Takeoffs, Landings, and Go-Arounds

Task	## D. Soft-Field Approach and Landing (ASEL)
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a soft-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of:
PA.IV.D.K1	A stabilized approach, to include energy management concepts.
PA.IV.D.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
PA.IV.D.K3	Wind correction techniques on approach and landing.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.D.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.D.R2	Effects of:
PA.IV.D.R2a	a. Crosswind

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PA.IV.D.R2b	b. Wind shear
PA.IV.D.R2c	c. Tailwind
PA.IV.D.R2d	d. Wake turbulence
PA.IV.D.R2e	e. Runway surface/condition
PA.IV.D.R3	Abnormal operations, to include planning for rejected landing and go-around.
PA.IV.D.R4	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.D.R5	Low altitude maneuvering/stall/spin.
PA.IV.D.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.D.S1	Complete the appropriate checklist.
PA.IV.D.S2	Make radio calls as appropriate.
PA.IV.D.S3	Ensure the aircraft is aligned with the correct/assigned runway.
PA.IV.D.S4	Scan the landing runway and adjoining area for traffic and obstructions.
PA.IV.D.S5	Consider the wind conditions, landing surface, obstructions, and select a suitable touchdown point.
PA.IV.D.S6	Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required to maintain a stabilized approach.
PA.IV.D.S7	Maintain recommended airspeed, or in its absence, not more than 1.3 VSO, +10/-5 knots, with wind gust factor applied.
PA.IV.D.S8	Maintain crosswind correction and directional control throughout the approach and landing.
PA.IV.D.S9	Make smooth, timely, and correct control inputs during the round out and touchdown and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness.
PA.IV.D.S10	Touch down with minimum sink rate, no side drift, and with the airplane's longitudinal axis aligned with the center of the runway.
PA.IV.D.S11	Maintain elevator as recommended by manufacturer during rollout and exit the "soft" area at a speed that would preclude sinking into the surface.
PA.IV.D.S12	Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
PA.IV.D.S13	Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface.

FAA-H-8083-2, FAA-H-8083-3, POH/AFM. Soft and short field takeoffs, Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Rejected landings discussion,

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Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

IV. Takeoffs, Landings, and Go-Arounds	
Task	E. Short-Field Takeoff and Maximum Performance Climb (ASEL)
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a short-field takeoff, maximum performance climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of:
PA.IV.E.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
PA.IV.E.K2	VX and VY.
PA.IV.E.K3	Appropriate aircraft configuration.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.E.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.E.R2	Effects of:
PA.IV.E.R2a	a. Crosswind
PA.IV.E.R2b	b. Wind shear
PA.IV.E.R2c	c. Tailwind
PA.IV.E.R2d	d. Wake turbulence
PA.IV.E.R2e	e. Runway surface/condition
PA.IV.E.R3	Abnormal operations, to include planning for:
PA.IV.E.R3a	a. Rejected takeoff
PA.IV.E.R3b	b. Engine failure in takeoff/climb phase of flight

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PA.IV.E.R4	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.IV.E.R5	Low altitude maneuvering/stall/spin.
PA.IV.E.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.E.S1	Complete the appropriate checklist.
PA.IV.E.S2	Make radio calls as appropriate.
PA.IV.E.S3	Verify assigned/correct runway.
PA.IV.E.S4	Ascertain wind direction with or without visible wind direction indicators.
PA.IV.E.S5	Position the flight controls for the existing wind conditions.
PA.IV.E.S6	Clear the area, taxi into takeoff position and align the airplane on the runway centerline utilizing maximum available takeoff area.
PA.IV.E.S7	Apply brakes while setting aircraft power to achieve maximum performance.
PA.IV.E.S8	Confirm takeoff power prior to brake release and verify proper engine and flight instrument indications prior to rotation.
PA.IV.E.S9	Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX +10/-5 knots.
PA.IV.E.S10	Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface.
PA.IV.E.S11	After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb.
PA.IV.E.S12	Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
PA.IV.E.S13	Maintain VY +10/-5 knots to a safe maneuvering altitude.
PA.IV.E.S14	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
PA.IV.E.S15	Comply with noise abatement procedures.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Pilot Guide to Takeoff Safety FAA (Commercial airline discussion),

IV. Takeoffs, Landings, and Go-Arounds

Task	F. Short-Field Approach and Landing (ASEL)
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a short-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of:
PA.IV.F.K1	A stabilized approach, to include energy management concepts.
PA.IV.F.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.

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PA.IV.F.K3	Wind correction techniques on approach and landing.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.F.R1	Selection of runway based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.F.R2	Effects of:
PA.IV.F.R2a	a. Crosswind
PA.IV.F.R2b	b. Wind shear
PA.IV.F.R2c	c. Tailwind
PA.IV.F.R2d	d. Wake turbulence
PA.IV.F.R2e	e. Runway surface/condition
PA.IV.F.R3	Abnormal operations, to include planning for:
PA.IV.F.R3a	a. Rejected landing and go-around
PA.IV.F.R3b	b. Land and hold short operations (LAHSO)
PA.IV.F.R4	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.F.R5	Low altitude maneuvering/stall/spin.
PA.IV.F.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.F.S1	Complete the appropriate checklist.
PA.IV.F.S2	Make radio calls as appropriate.
PA.IV.F.S3	Ensure the aircraft is aligned with the correct/assigned runway.
PA.IV.F.S4	Scan the landing runway and adjoining area for traffic and obstructions.
PA.IV.F.S5	Consider the wind conditions, landing surface, and select a suitable touchdown point.
PA.IV.F.S6	Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required to maintain a stabilized approach.
PA.IV.F.S7	Maintain manufacturer's published airspeed, or in its absence, not more than 1.3 VSO, +10/-5 knots, with wind gust factor applied.
PA.IV.F.S8	Maintain crosswind correction and directional control throughout the approach and landing sequence.
PA.IV.F.S9	Make smooth, timely, and correct control inputs during the round out and touchdown.
PA.IV.F.S10	Touch down at the recommended airspeed.
PA.IV.F.S11	Touch down within 200 feet beyond the specified point, threshold markings or runway numbers, with no side

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	drift, minimum float, and with the airplane's longitudinal axis aligned with and over runway centerline.
PA.IV.F.S12	Use manufacturer's recommended procedures for aircraft configuration and braking.
PA.IV.F.S13	Execute a safe and timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
PA.IV.F.S14	Utilize runway incursion avoidance procedures.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Spot landing discussion, Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Rejected landings discussion, Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

IV. Takeoffs, Landings, and Go-Arounds

M. Forward Slip to a Landing (ASEL)

Task	
Change 1 (6/12/2017) Task	
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a forward slip to a landing.
Knowledge	The applicant demonstrates understanding of:
PA.IV.M.K1	Concepts of energy management during a forward slip approach.
PA.IV.M.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
PA.IV.M.K3	Wind correction techniques during forward slip approaches.
PA.IV.M.K4	When and why a forward slip approach is used.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.M.R1	Selection of runway or approach path and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
PA.IV.M.R2	Effects of:
PA.IV.M.R2a	a. Crosswind
PA.IV.M.R2b	b. Wind shear
PA.IV.M.R2c	c. Tailwind
PA.IV.M.R2d	d. Wake turbulence.
PA.IV.M.R2e	e. Runway surface/condition

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PA.IV.M.R3	Abnormal operations, to include planning for rejected landing and go-around.
PA.IV.M.R4	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.M.R5	Low altitude maneuvering/stall/spin.
PA.IV.M.R6	Distractions, loss of situational awareness, and/or improper task management.
PA.IV.M.R7	Forward slip operations, including fuel flowage, tail stalls with flaps, and lack of airspeed control.
Skills	The applicant demonstrates the ability to:
PA.IV.M.S1	Complete the appropriate checklist.
PA.IV.M.S2	Make radio calls as appropriate.
PA.IV.M.S3	Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
PA.IV.M.S4	Select the most suitable touchdown point based on wind, landing surface, obstructions, and aircraft limitations.
PA.IV.M.S5	Position airplane on downwind leg, parallel to landing runway.
PA.IV.M.S6	Correctly configure the airplane.
PA.IV.M.S7	As necessary, correlate crosswind with direction of forward slip and transition to side slip for landing.
PA.IV.M.S8	Touch down within -0/+400 feet from the specified touchdown point with minimum side drift.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Forward slip to landing (AOPA). See figure below. Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Rejected landings discussion, Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

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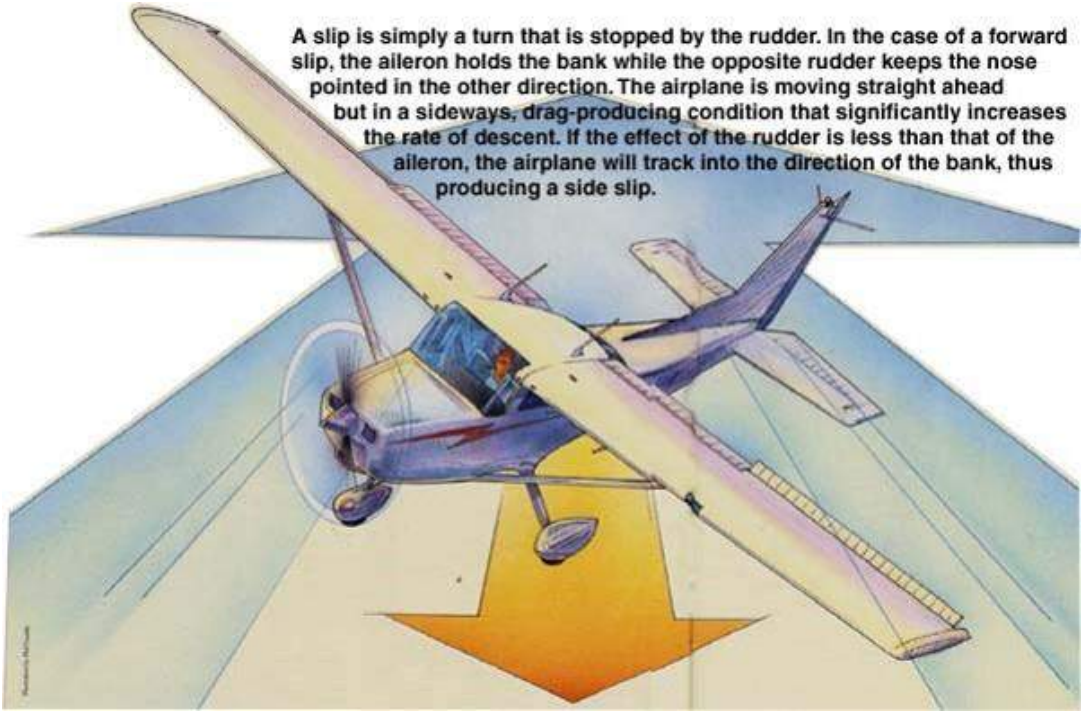

IV. Takeoffs, Landings, and Go-Arounds

Task	N. Go-Around/Rejected Landing
References	
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a go-around/rejected landing with emphasis on factors that contribute to landing conditions that may require a go-around.
Knowledge	The applicant demonstrates understanding of:
PA.IV.N.K1	A stabilized approach, to include energy management concepts.
PA.IV.N.K2	Effects of atmospheric conditions, including wind and density altitude on a go-around or rejected landing.
PA.IV.N.K3	Wind correction techniques on takeoff/departure, and approach/landing.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.N.R1	Delayed recognition of the need for rejected landing/go-around.
PA.IV.N.R2	Delayed performance of go-around at low altitude.
PA.IV.N.R3	Improper application of power.

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PA.IV.N.R4	Improper aircraft configuration.
PA.IV.N.R5	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.IV.N.R6	Low altitude maneuvering/stall/spin.
PA.IV.N.R7	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IV.N.S1	Complete the appropriate checklist.
PA.IV.N.S2	Make radio calls as appropriate.
PA.IV.N.S3	Make a timely decision to discontinue the approach to landing.
PA.IV.N.S4	Apply takeoff power immediately and transition to climb pitch attitude for VX or VY as appropriate +10/-5 knots.
PA.IV.N.S5	Retract the flaps, as appropriate.
PA.IV.N.S6	Retract the landing gear after establishing a positive rate of climb.
PA.IV.N.S7	Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
PA.IV.N.S8	Maintain VY +10/-5 knots to a safe maneuvering altitude.
PA.IV.N.S9	Maintain directional control and proper wind-drift correction throughout the climb.

Links

FAA-H-8083-3, FAA-H-8083-23, POH/AFM, Rejected landings, Approach and Landings, FAA stabilized approach checklist, Baulked landings and go-arounds (Australian). Runway incursions (Flight Safety Org), Density Altitude FAA-P-8740-2, VX and VY discussion, Cross wind component discussion, Engine failures after takeoffs, Stall spin awareness FAA-61-67C, Transitioning to complex aircraft, FAA Approaches and Landings, FAA Wake Turbulence training, Controlled flight into terrain CFIT, FAA Prevent Loss of Control Accidents, FAA Takeoffs and Departure Climbs.

V. Performance and Ground Reference Maneuvers Tasks

A. Steep Turns

References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations.*
Knowledge	The applicant demonstrates understanding of:
PA.V.A.K1	Purpose of steep turns.
PA.V.A.K2	Aerodynamics associated with steep turns, to include:
PA.V.A.K2a	a. Coordinated and uncoordinated flight
PA.V.A.K2b	b. Overbanking tendencies
PA.V.A.K2c	c. Maneuvering speed, including impact of weight changes
PA.V.A.K2d	

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	d. Accelerated stalls
PA.V.A.K2e	e. Rate and radius of turn
PA.V.A.K2f	f. Effect of bank angle on stalls
PA.V.A.K3	Altitude control at various airspeeds.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.V.A.R1	Failure to divide attention between airplane control and orientation.
PA.V.A.R2	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.V.A.R3	Low altitude maneuvering/stall/spin.
PA.V.A.R4	Distractions, loss of situational awareness, and/or improper task management.
PA.V.A.R5	Failure to maintain coordinated flight.
Skills	The applicant demonstrates the ability to:
PA.V.A.S1	Clear the area.
PA.V.A.S2	Establish the manufacturer's recommended airspeed or, if not stated, a safe airspeed not to exceed VA.
PA.V.A.S3	Roll into a coordinated 360° steep turn with approximately a 45° bank.
PA.V.A.S4	Perform the Task in the opposite direction, as specified by evaluator.
PA.V.A.S5	Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°, and roll out on the entry heading ±10°.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Basic Flight Maneuvers, Aerodynamics of steep turns discussion.

V. Performance and Ground Reference Maneuvers

Task	B. Ground Reference Maneuvers
References	14 CFR part 61; FAA-H-8083-2, FAA-H-8083-3
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with ground reference maneuvering which may include a rectangular course, S-turns, and turns around a point. ***Note:*** *See Appendix 7 – Operational Requirements and Limitations.*
Knowledge	The applicant demonstrates understanding of:
PA.V.B.K1	Purpose of ground reference maneuvers.
PA.V.B.K2	Effects of wind on ground track and relation to a ground reference point.
PA.V.B.K3	Effects of bank angle and groundspeed on rate and radius of turn.
PA.V.B.K4	Relationship of rectangular course to airport traffic pattern.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:

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PA.V.B.R1	Failure to divide attention between airplane control and orientation.
PA.V.B.R2	Collision hazards to include other aircraft, terrain, obstacles, and wire.
PA.V.B.R3	Low altitude maneuvering/stall/spin.
PA.V.B.R4	Distractions, loss of situational awareness, and/or improper task management.
PA.V.B.R5	Failure to maintain coordinated flight.
Skills	The applicant demonstrates the ability to:
PA.V.B.S1	Clear the area.
PA.V.B.S2	Select a suitable ground reference area, line, or point as appropriate.
PA.V.B.S3	Plan the maneuver: ***Note:*** *The evaluator must select at least one maneuver for the applicant to demonstrate.*
PA.V.B.S3a	a. Rectangular course: enter a left or right pattern, 600 to 1,000 feet above ground level (AGL) at an appropriate distance from the selected reference area, 45° to the downwind leg
PA.V.B.S3b	b. S-turns: enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area
PA.V.B.S3c	c. Turns around a point: enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area
PA.V.B.S4	Apply adequate wind drift correction during straight and turning flight to maintain a constant ground track around a rectangular reference area, or to maintain a constant radius turn on each side of a selected reference line or point.
PA.V.B.S5	If performing S-Turns, reverse the turn directly over the selected reference line; if performing turns around a point, complete turns in either direction, as specified by the evaluator.
PA.V.B.S6	Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.
PA.V.B.S7	Maintain altitude ±100 feet; maintain airspeed ±10 knots.

Links

14 CFR part 61, FAA-H-8083-2FAA-H-8083-3, Ground Reference Maneuvers, Commercial Pilot ACS (for aspects of maneuvering and equipment details.

I. Navigation Tasks

A. Pilotage and Dead Reckoning

References

14 CFR part 61; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts

Objective

To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with pilotage and dead reckoning.

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Knowledge	The applicant demonstrates understanding of:
PA.VI.A.K1	Pilotage and dead reckoning.
PA.VI.A.K2	Magnetic compass errors.
PA.VI.A.K3	Topography.
PA.VI.A.K4	Selection of appropriate: FAA navigation chapter
PA.VI.A.K4a	a. Route
PA.VI.A.K4b	b. Altitude(s)
PA.VI.A.K4c	c. Checkpoints
PA.VI.A.K5	Plotting a course, to include:
PA.VI.A.K5a	a. Determining heading, speed, and course
PA.VI.A.K5b	b. Wind correction angle
PA.VI.A.K5c	c. Estimating time, speed, and distance
PA.VI.A.K5d	d. True airspeed and density altitude
PA.VI.A.K6	Power setting selection.
PA.VI.A.K7	Planned versus actual flight plan calculations and required corrections.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VI.A.R1	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.VI.A.R2	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VI.A.S1	Prepare and use a flight log.
PA.VI.A.S2	Navigate by pilotage.
PA.VI.A.S3	Navigate by means of pre-computed headings, groundspeeds, and elapsed time.
PA.VI.A.S4	Demonstrate use of the magnetic direction indicator in navigation, to include turns to headings.
PA.VI.A.S5	Verify position within three nautical miles of the flight-planned route.
PA.VI.A.S6	Arrive at the en route checkpoints within five minutes of the initial or revised estimated time of arrival and provide a destination estimate.
PA.VI.A.S7	Maintain the selected altitude, ±200 feet and headings, ±15°.

Links

14 CFR part 61, FAA-H-8083-2, FAA-H-8083-25, Navigation Charts, Pilotage and dead reckoning (AOPA; without a GPS), Topographical maps (USGS), Wind correction calculations, Rule of thumb for wind correction angle and 9 other in-cockpit calculations.

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VI. Navigation	
Task	B. Navigation Systems and Radar Services
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-6, FAA-H-8083-25; AIM ***Note:*** *The evaluator should reference the manufacturer's equipment supplement(s) as necessary.*
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with navigation systems and radar services.
Knowledge	The applicant demonstrates understanding of:
PA.VI.B.K1	Ground-based navigation (orientation, course determination, equipment, tests and regulations).
PA.VI.B.K2	Satellite-based navigation (e.g., equipment, regulations, authorized use of databases, and Receiver Autonomous Integrity Monitoring (RAIM)).
PA.VI.B.K3	Radar assistance to VFR aircraft (e.g., operations, equipment, available services, traffic advisories).
PA.VI.B.K4	Transponder (Mode(s) A, C, and S).
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VI.B.R1	Failure to manage automated navigation and auto flight systems.
PA.VI.B.R2	Distractions, loss of situational awareness, and/or improper task management.
PA.VI.B.R3	Limitations of the navigation system in use.
Skills	The applicant demonstrates the ability to:
PA.VI.B.S1	Use an airborne electronic navigation system.
PA.VI.B.S2	Determine the airplane's position using the navigation system.
PA.VI.B.S3	Intercept and track a given course, radial, or bearing, as appropriate.
PA.VI.B.S4	Recognize and describe the indication of station or waypoint passage, if appropriate.
PA.VI.B.S5	Recognize signal loss and take appropriate action.
PA.VI.B.S6	Use proper communication procedures when utilizing radar services.
PA.VI.B.S7	Maintain the appropriate altitude, ±200 feet and heading ±15°.

Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25, AIM, Airborne Navigation Databases FAA-H-8083-16B, Advanced Avionics Handbook FAA-H-8083-6, Navigation FAA_AAH Full version, Basic FAA Radar Service to VFR Aircraft – Terminal

Note: *The evaluator should reference the manufacturer's equipment supplement(s) as necessary.*

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VI. Navigation

Task C. Diversion

References	FAA-H-8083-2, FAA-H-8083-25; AIM; Navigation Charts
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with diversion.
Knowledge	The applicant demonstrates understanding of:
PA.VI.C.K1	Selecting an alternate destination.
PA.VI.C.K2	Situations that require deviations from flight plan and/or ATC instructions.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VI.C.R1	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.VI.C.R2	Distractions, loss of situational awareness, and/or improper task management.
PA.VI.C.R3	Failure to make a timely decision to divert.
PA.VI.C.R4	Failure to select an appropriate airport.
PA.VI.C.R5	Failure to utilize all available resources (e.g., automation, ATC, and flight deck planning aids).
Skills	The applicant demonstrates the ability to:
PA.VI.C.S1	Select a suitable airport and route for diversion.
PA.VI.C.S2	Make a reasonable estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport.
PA.VI.C.S3	Maintain the appropriate altitude, ±200 feet and heading, ±15°.
PA.VI.C.S4	Update/interpret weather in flight.
PA.VI.C.S5	Explain and use flight deck displays of digital weather and aeronautical information, as applicable.

Links

FAA-H-8083-2, FAA-H-8083-25, AIM. Navigation Charts, Diversion navigation during checkride discussion

VI. Navigation

Task D. Lost Procedures

References	FAA-H-8083-2, FAA-H-8083-25; AIM; Navigation Charts
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with lost procedures and taking appropriate steps to achieve a satisfactory outcome if lost. FAA Emergency Procedures
Knowledge	The applicant demonstrates understanding of:
PA.VI.D.K1	Methods to determine position.
PA.VI.D.K2	Assistance available if lost (e.g. radar services, communication procedures).
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VI.D.R1	Collision hazards, to include aircraft, terrain, obstacles and wires.

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PA.VI.D.R2	Distractions, loss of situational awareness, and/or improper task management.
PA.VI.D.R3	Failure to record times over waypoints.
PA.VI.D.R4	Failure to seek assistance or declare an emergency in a deteriorating situation.
Skills	The applicant demonstrates the ability to:
PA.VI.D.S1	Use an appropriate method to determine position.
PA.VI.D.S2	Maintain an appropriate heading and climb as necessary.
PA.VI.D.S3	Identify prominent landmarks.
PA.VI.D.S4	Use navigation systems/facilities and/or contact an ATC facility for assistance

Links

FAA-H-8083-2, FAA-H-8083-25, AIM, Navigation Charts, Emergency Procedures FAA-H-8083-16B, Lost aircraft navigation discussion

VII. Slow Flight and Stalls Tasks

A. Maneuvering During Slow Flight

References	FAA-H-8083-2, FAA-H-8083-25; AIM; Navigation Charts
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight. ***Note:*** *See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations.*
Knowledge *PA.VII.A.K1*	The applicant demonstrates understanding of: Aerodynamics associated with slow flight in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
Risk Management *PA.VII.A.R1*	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing: Inadvertent slow flight and flight with a stall warning, which could lead to loss of control.
PA.VII.A.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
PA.VII.A.R3	Failure to maintain coordinated flight.
PA.VII.A.R4	Effect of environmental elements on aircraft performance. (e.g., turbulence, microbursts, and high density altitude).
PA.VII.A.R5	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VII.A.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VII.A.S1	Clear the area.
PA.VII.A.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
PA.VII.A.S3	Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in a stall warning (e.g., aircraft buffet, stall horn, etc.).

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PA.VII.A.S4	Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator without a stall warning (e.g., aircraft buffet, stall horn, etc.).
PA.VII.A.S5	Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed +10/-0 knots; and specified angle of bank, ±10°.

Links

FAA-H-8083-2, FAA-H-8083-25, AIM, Navigation Charts, Maintaining Aircraft Control: Upset Prevention and Recovery Training, Stall and Spin Awareness Training

VII. Slow Flight and Stalls

Task	B. Power-Off Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations.*
Knowledge	The applicant demonstrates understanding of:
PA.VII.B.K1	Aerodynamics associated with stalls in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
PA.VII.B.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound or feel).
PA.VII.B.K3	Factors and situations that can lead to a power-off stall and actions that can be taken to prevent it.
PA.VII.B.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.B.R1	Factors and situations that could lead to inadvertent power-off stall, spin, and loss of control.
PA.VII.B.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
PA.VII.B.R3	Failure to recognize and recover at the stall warning during normal operations.
PA.VII.B.R4	Improper stall recovery procedure.
PA.VII.B.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
PA.VII.B.R6	Effect of environmental elements on aircraft performance related to power-off stalls (e.g., turbulence, microbursts, and high density altitude).
PA.VII.B.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VII.B.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VII.B.S1	Clear the area.
PA.VII.B.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or ~~3,000 feet AGL (AMEL, AMES).~~

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PA.VII.B.S3	Configure the airplane in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
PA.VII.B.S4	Establish a stabilized descent.
PA.VII.B.S5	Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
PA.VII.B.S6	Maintain a specified heading, ±10 if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall.
PA.VII.B.S7	Acknowledge cues of the impending stall and then recover promptly after a full stall has occurred.
PA.VII.B.S8	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
PA.VII.B.S9	Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.
PA.VII.B.S10	Accelerate to VX or VY speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM. Maintaining Aircraft Control: Upset Prevention and Recovery Training, Stall and Spin Awareness Training

VII. Slow Flight and Stalls

Task	C. Power-On Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-on stalls. ***Note:*** *See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations.*
Knowledge	The applicant demonstrates understanding of:
PA.VII.C.K1	Aerodynamics associated with stalls in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
PA.VII.C.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
PA.VII.C.K3	Factors and situations that can lead to a power-on stall and actions that can be taken to prevent it.
PA.VII.C.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.C.R1	Factors and situations that could lead to inadvertent power-on stall, spin, and loss of control.
PA.VII.C.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).

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PA.VII.C.R3	Failure to recognize the stall warning during normal operations.
PA.VII.C.R4	Improper stall recovery procedure.
PA.VII.C.R5	Secondary stalls, accelerated stalls, elevator trim stalls, and cross-control stalls.
PA.VII.C.R6	Effect of environmental elements on aircraft performance related to power-on stalls (e.g., turbulence, microbursts, and high density altitude).
PA.VII.C.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VII.C.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VII.C.S1	Clear the area.
PA.VII.C.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
PA.VII.C.S3	Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
PA.VII.C.S4	Set power (as assigned by the evaluator) to no less than 65 percent available power.
PA.VII.C.S5	Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall.
PA.VII.C.S6	Maintain a specified heading, ±10 if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10° if in turning flight, while inducing the stall.
PA.VII.C.S7	Acknowledge the cues of the impending stall and then recover promptly after a full stall occurs.
PA.VII.C.S8	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
PA.VII.C.S9	Retract the flaps to the recommended setting, if applicable; retract the landing gear, if retractable, after a positive rate of climb is established.
PA.VII.C.S10	Accelerate to VX or VY speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Stall and Spin Awareness Training AC 61-67C

VII. Slow Flight and Stalls

Task	D. Spin Awareness
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with spins, flight situations where unintentional spins may occur and procedures for recovery from unintentional spins.
Knowledge	The applicant demonstrates understanding of:
PA.VII.D.K1	Aerodynamics associated with spins in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor,

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	power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
PA.VII.D.K2	What causes a spin and how to identify the entry, incipient, and developed phases of a spin.
PA.VII.D.K3	Spin recovery procedure.
	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
Risk Management	
PA.VII.D.R1	Factors and situations that could lead to inadvertent spin and loss of control.
PA.VII.D.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
PA.VII.D.R3	Improper spin recovery procedure.
PA.VII.D.R4	Effect of environmental elements on aircraft performance related to spins (e.g., turbulence, microbursts, and high density altitude).
PA.VII.D.R5	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VII.D.R6	Distractions, loss of situational awareness, and/or improper task management.
VIII. Basic Instrument Maneuvers Task	A. Straight-and-Level Flight
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during straight-and-level flight.
Knowledge	The applicant demonstrates understanding of:
PA.VIII.A.K1	Flight instruments as related to:
PA.VIII.A.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
PA.VIII.A.K1b	b. Correlation (pitch instruments/bank instruments)
PA.VIII.A.K1c	c. Function and operation
PA.VIII.A.K1d	d. Proper instrument cross-check techniques
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VIII.A.R1	Instrument flying hazards to include failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
PA.VIII.A.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
PA.VIII.A.R3	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VIII.A.R4	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VIII.A.S1	Maintain straight-and-level flight solely by reference to instruments using proper instrument cross-check and interpretation, and coordinated control application.

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PA.VIII.A.S2	Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.

Links
FAA-H-8083-2, FAA-H-8083-3, POH/AFM. Stall and Spin Awareness Training

VIII. Basic Instrument Maneuvers

B. Constant Airspeed Climbs

Task	
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during constant airspeed climbs.
Knowledge	The applicant demonstrates understanding of:
PA.VIII.B.K1	Flight instruments as related to:
PA.VIII.B.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
PA.VIII.B.K1b	b. Correlation (pitch instruments/bank instruments)
PA.VIII.B.K1c	c. Function and operation
PA.VIII.B.K1d	d. Proper instrument cross-check techniques
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VIII.B.R1	Instrument flying hazards to include failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
PA.VIII.B.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
PA.VIII.B.R3	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.VIII.B.R4	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VIII.B.S1	Transition to the climb pitch attitude and power setting on an assigned heading using proper instrument cross-check and interpretation, and coordinated flight control application.
PA.VIII.B.S2	Demonstrate climbs solely by reference to instruments at a constant airspeed to specific altitudes in straight flight and turns.
PA.VIII.B.S3	Level off at the assigned altitude and maintain altitude ±200 feet, heading ±20° and airspeed ±10 knots.

Links

FAA-H-8083-2, FAA-H-8083-3, Instrument Flying Handbook FAA-H-8083-15 Chapter 7 Section 1.

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VIII. Basic Instrument Maneuvers

Task

C. Constant Airspeed Descents

References
FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15

Objective
To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during constant airspeed descents.

Knowledge
The applicant demonstrates understanding of:

PA.VIII.C.K1
Flight instruments as related to:

PA.VIII.C.K1a
a. Sensitivity, limitations, and potential errors in unusual attitudes. Applies to C.K1 to C.K1d.

PA.VIII.C.K1b
b. Correlation (pitch instruments/bank instruments)

PA.VIII.C.K1c
c. Function and operation

PA.VIII.C.K1d
d. Proper instrument cross-check techniques

Risk Management
The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:

PA.VIII.C.R1
Instrument flying hazards to include failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.

PA.VIII.C.R2
Failure to seek assistance or declare an emergency in a deteriorating situation.

PA.VIII.C.R3
Collision hazards, to include aircraft, terrain, obstacles, and wires.

PA.VIII.C.R4
Distractions, loss of situational awareness, and/or improper task management.

Skills
The applicant demonstrates the ability to:

PA.VIII.C.S1
Transition to the descent pitch attitude and power setting on an assigned heading using proper instrument cross-check and interpretation, and coordinated flight control application.

PA.VIII.C.S2
Demonstrate descents solely by reference to instruments at a constant airspeed to specific altitudes in straight flight and turns.

PA.VIII.C.S3
Level off at the assigned altitude and maintain altitude ±200 feet, heading ±20° and airspeed ±10 knots.

Links

FAA-H-8083-2, FAA-H-8083-3, Instrument Flying Handbook FAA-H-8083-15 Chapter 7 Section 1, Unusual attitudes.

VIII. Basic Instrument Maneuvers

Task

D. Turns to Headings

References
FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15

Objective
To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during turns to headings.

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Knowledge *PA.VIII.D.K1* *PA.VIII.D.K1a*	The applicant demonstrates understanding of: Flight instruments as related to: a. Sensitivity, limitations, and potential errors in unusual attitudes. Applies to D.K1 to D.K1d.
PA.VIII.D.K1b	b. Correlation (pitch instruments/bank instruments)
PA.VIII.D.K1c	c. Function and operation
PA.VIII.D.K1d	d. Proper instrument cross-check techniques
	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
Risk Management *PA.VIII.D.R1*	Instrument flying hazards to include failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
PA.VIII.D.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
PA.VIII.D.R3	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VIII.D.R4	Distractions, loss of situational awareness, and/or improper task management.
Skills *PA.VIII.D.S1*	The applicant demonstrates the ability to: Demonstrate turns to headings solely by reference to instruments, maintain altitude ±200 feet and maintain a standard rate turn and rolls out on the assigned heading ±10°; maintain airspeed ±10 knots.

Links

FAA-H-8083-2, FAA-H-8083-3, Instrument Flying Handbook FAA-H-8083-15 Chapter 7 Section 1, Unusual attitudes.

VIII. Basic Instrument Maneuvers

Task	E. Recovery from Unusual Flight Attitudes
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying while recovering from unusual attitudes.
Knowledge *PA.VIII.E.K1* *PA.VIII.E.K1a*	The applicant demonstrates understanding of: Flight instruments as related to: a. Sensitivity, limitations, and potential errors in unusual attitudes. Applies to E.K1 to E.K1d.

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PA.VIII.E.K1b	b. Correlation (pitch instruments/bank instruments)
PA.VIII.E.K1c	c. Function and operation
PA.VIII.E.K1d	d. Proper instrument cross-check techniques
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VIII.E.R1	Instrument flying hazards to include failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
PA.VIII.E.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
PA.VIII.E.R3	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VIII.E.R4	Distractions, loss of situational awareness, and/or improper task management.
PA.VIII.E.R5	Failure to interpret flight instruments.
PA.VIII.E.R6	Failure to unload the wings in recovering from high G situations.
Skills	The applicant demonstrates the ability to:
PA.VIII.E.S1	Recognize unusual flight attitudes solely by reference to instruments; perform the correct, coordinated, and smooth flight control application to resolve unusual pitch and bank attitudes while staying within the airplane's limitations and flight parameters.

Links

FAA-H-8083-2, FAA-H-8083-3, Instrument Flying Handbook FAA-H-8083-15A Chapter 6 Section II (2012), Unusual attitudes.

VIII. Basic Instrument Maneuvers

Task	F. Radio Communications, Navigation Systems/Facilities, and Radar Services
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15, FAA-H-8083-25
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with radio communications, navigation systems/facilities, and radar services available for use during flight solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:

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PA.VIII.F.K1	Operating communications equipment to include identifying and selecting radio frequencies, requesting and following ATC instructions.
PA.VIII.F.K2	Operating navigation equipment to include functions and displays, and following bearings, radials, or courses.
PA.VIII.F.K3	Air traffic control facilities and services.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VIII.F.R1	Failure to seek assistance or declare an emergency in a deteriorating situation.
PA.VIII.F.R2	Failure to utilize all available resources (e.g., automation, ATC, and flight deck planning aids).
Skills	The applicant demonstrates the ability to:
PA.VIII.F.S1	Maintain aircraft control while selecting proper communications frequencies, identifying the appropriate facility, and managing navigation equipment.
PA.VIII.F.S2	Comply with ATC instructions.
PA.VIII.F.S3	Maintain altitude ±200 feet, heading ±20° and airspeed ±10 knots.

Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25, Instrument Flying Handbook (2017 version).

IX. Emergency Operations Tasks

A. Emergency Descent

References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an emergency descent. ***Note:*** *See Appendix 6: Safety of Flight.*
Knowledge	The applicant demonstrates understanding of:
PA.IX.A.K1	Situations that require an emergency descent (e.g., depressurization, smoke, and/or engine fire).
PA.IX.A.K2	Immediate action items and emergency procedures.
PA.IX.A.K3	Airspeed, to include airspeed limitations.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IX.A.R1	Failure to consider altitude, wind, terrain, obstructions, and available glide distance.
PA.IX.A.R2	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.IX.A.R3	Improper aircraft configuration.
PA.IX.A.R4	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IX.A.S1	Clear the area.
PA.IX.A.S2	Establish and maintain the appropriate airspeed and configuration appropriate to the scenario specified by the evaluator and as covered in POH/AFM for the emergency descent.
PA.IX.A.S3	Demonstrate orientation, division of attention and proper planning.

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PA.IX.A.S4	Use bank angle between 30° and 45° to maintain positive load factors during the descent.
PA.IX.A.S5	Complete the appropriate checklist.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Emergency Procedures FAA AFH Chapter 17

IX. Emergency Operations
Change 1 (6/12/2017) Task

B. Emergency Approach and Landing (Simulated) (ASEL)

References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency approach and landing procedures. ***Note:*** *See Appendix 6: Safety of Flight.* Commercial ACS
Knowledge	The applicant demonstrates understanding of:
PA.IX.B.K1	Immediate action items and emergency procedures.
PA.IX.B.K1a	a. Airspeed, to include importance of best glide speed and its relationship to distance
PA.IX.B.K1b	b. Difference between best glide speed and minimum sink speed
PA.IX.B.K2	Effects of atmospheric conditions, including wind, on emergency approach and landing.
PA.IX.B.K3	A stabilized approach, to include concepts of energy management.
PA.IX.B.K4	ELTs and/or other emergency locating devices.
PA.IX.B.K5	ATC services to aircraft in distress.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IX.B.R1	Failure to consider altitude, wind, terrain, obstructions, and available landing distance.
PA.IX.B.R2	Failure to plan and follow a flightpath to the selected landing area.
PA.IX.B.R3	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.IX.B.R4	Improper aircraft configuration.
PA.IX.B.R5	Low altitude maneuvering/stall/spin.
PA.IX.B.R6	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IX.B.S1	Establish and maintain the recommended best glide airspeed, ±10 knots.
PA.IX.B.S2	Configure the airplane in accordance with POH/AFM and existing circumstances.
PA.IX.B.S3	Select a suitable landing area considering altitude, wind, terrain, obstructions, and available glide distance.
PA.IX.B.S4	Plan and follow a flightpath to the selected landing area.
PA.IX.B.S5	Prepare for landing as specified by the evaluator.
PA.IX.B.S6	Complete the appropriate checklist.

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Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Emergency Procedures FAA AFH Chapter 17. Commercial ACS- Appendix 6.

IX. Emergency Operations

Task	C. Systems and Equipment Malfunction
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with system and equipment malfunctions appropriate to the airplane provided for the practical test and analyzing the situation and take appropriate action for simulated emergencies.
Knowledge	The applicant demonstrates understanding of:
PA.IX.C.K1	Partial or complete power loss related to the specific powerplant, including:
PA.IX.C.K1a	a. Engine roughness or overheat
PA.IX.C.K1b	b. Carburetor or induction icing
PA.IX.C.K1c	c. Loss of oil pressure
PA.IX.C.K1d	d. Fuel starvation
PA.IX.C.K2	System and equipment malfunctions specific to the airplane, including:
PA.IX.C.K2a	a. Electrical malfunction
PA.IX.C.K2b	b. Vacuum/pressure, and associated flight instruments malfunction
PA.IX.C.K2c	c. Pitot/static system malfunction
PA.IX.C.K2d	d. Electronic flight deck display malfunction
PA.IX.C.K2e	e. Landing gear or flap malfunction
PA.IX.C.K2f	f. Inoperative trim
PA.IX.C.K3	Smoke, fire, engine compartment fire.
PA.IX.C.K4	Any other system specific to the airplane (e.g., supplemental oxygen, deicing).
PA.IX.C.K5	Inadvertent door or window opening.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:

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PA.IX.C.R1	Failure to use the proper checklist for a system or equipment malfunction.
PA.IX.C.R2	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.IX.C.S1	Describe appropriate action for simulated emergencies specified by the evaluator from at least three of the elements or sub-elements listed in the K1 through K5 above.
PA.IX.C.S2	Complete the appropriate checklist.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM, Emergency Procedures FAA AFH Chapter 17, Emergency landing procedures, Flight emergency review.

IX. Emergency Operations

Task	D. Emergency Equipment and Survival Gear
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency equipment, and survival gear appropriate to the airplane and environment encountered during flight and identifying appropriate equipment that should be onboard the airplane.
Knowledge	The applicant demonstrates understanding of:
PA.IX.D.K1	ELT operations, limitations, and testing requirements.
PA.IX.D.K2	Fire extinguisher operations and limitations.
PA.IX.D.K3	Emergency equipment and survival gear needed for:
PA.IX.D.K3a	a. Climate extremes (hot/cold)
PA.IX.D.K3b	b. Mountainous terrain
PA.IX.D.K3c	c. Overwater operations
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IX.D.R1	Failure to plan for basic needs (water, clothing, shelter) for 48 to 72 hours.
Skills	The applicant demonstrates the ability to:
PA.IX.D.S1	Identify appropriate equipment and personal gear.
PA.IX.D.S2	Brief passengers on proper use of on-board emergency equipment and survival gear.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM

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XI. Night Operations Tasks

A. Night Preparation

References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; AIM; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with night operations.
Knowledge	The applicant demonstrates understanding of:
PA.XI.A.K1	Physiological aspects of night flying as it relates to vision.
PA.XI.A.K2	Lighting systems identifying airports, runways, taxiways and obstructions, as well as pilot controlled lighting.
PA.XI.A.K3	Airplane equipment and lighting requirements for night operations.
PA.XI.A.K4	Personal equipment essential for night flight.
PA.XI.A.K5	Night orientation, navigation, and chart reading techniques.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.XI.A.R1	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.XI.A.R2	Distractions, loss of situational awareness, and/or improper task management.
PA.XI.A.R3	Hazards specific to night flying.
Skills	*N/A*
	Note: *Not generally evaluated in flight. If the practical test is conducted at night, all ACS Tasks are evaluated in that environment, thus there is no need for explicit Task elements to exist here.*

Links

FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25, AIM; POH/AFM

XII. Postflight Procedures Tasks

A. After Landing, Parking and Securing (ASEL)

References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with after landing, parking, and securing procedures.
Knowledge	The applicant demonstrates understanding of:
PA.XII.A.K1	Aircraft shutdown, securing, and postflight inspection.
PA.XII.A.K2	Documenting in-flight/postflight discrepancies, if any.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.XII.A.R1	Inappropriate activities and distractions.
PA.XII.A.R2	Confirmation or expectation bias as related to taxi instructions.
PA.XII.A.R3	Airport specific security procedures.
Skills	The applicant demonstrates the ability to:
PA.XII.A.S1	Demonstrate runway incursion avoidance procedures.
PA.XII.A.S2	Park in an appropriate area, considering the safety of nearby persons and property.

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PA.XII.A.S3	Complete the appropriate checklist.
PA.XII.A.S4	Disembark passengers safely and monitor passenger movement while on the ramp.
PA.XII.A.S5	Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
PA.XII.A.S6	Secure the aircraft.

Links

FAA-H-8083-2, FAA-H-8083-3, POH/AFM

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Appendix 1: The Knowledge Test Eligibility, Prerequisites, and Testing Centers

Knowledge Test Description

The knowledge test is an important part of the airman certification process. Applicants must pass the knowledge test before taking the practical test.

The knowledge test consists of objective, multiple-choice questions. There is a single correct response for each test question. Each test question is independent of other questions. A correct response to one question does not depend upon, or influence, the correct response to another.

Knowledge Test Table

Test Code	Test Name	Number of Questions	Age	Allotted Time	Passing Score
PAR	Private Pilot Airplane	60	15	2.5	70
PAT	Private Pilot Airplane/Recreational Pilot - Transition	30	15	1.5	70
PBG	Private Pilot Balloon - Gas	60	14	2.5	70
PBH	Private Pilot Balloon - Hot Air	60	14	2.5	70
PCH	Private Pilot Helicopter ***Canadian Conversion***	40	16	2.0	70
PCP	Private Pilot – Airplane ***Canadian Conversion***	40	16	2.0	70
PGL	Private Pilot Glider	60	14	2.5	70
PGT	Private Pilot Gyroplane/Recreational Pilot - Transition	30	15	1.5	70
PHT	Private Pilot Helicopter/Recreational Pilot - Transition	30	15	1.5	70
PLA	Private Pilot Airship	60	15	2.5	70
PPP	Private Pilot Powered Parachute	60	15	2.5	70
PRG	Private Pilot Gyroplane	60	15	2.5	70
PRH	Private Pilot Helicopter	60	15	2.5	70
PWS	Private Pilot Weight-Shift-Control	60	15	2.5	70

Knowledge Test Blueprint

PAR Knowledge Areas Required by 14 CFR part 61, section 61.105 to be on the Knowledge Test	Percent of Questions Per Test
Regulations	5 – 15%
Accident Reporting	5 – 10%
Performance Charts	5 – 10%

Radio Communications	5 – 10%
Weather	5 – 10%
Safe and Efficient Operations	5 – 15%
Density Altitude Performance	5 – 10%
Weight and Balance	5 – 10%
Aerodynamics, Powerplants, and Aircraft Systems	5 – 10%
Stalls and Spins	5 – 10%
Aeronautical Decision-Making (ADM)	5 – 10%
Preflight actions	5 – 10%
Total Number of Questions	**60**

English Language Standard

In accordance with the requirements of 14 CFR part 61, section 61.13(c) the applicant must demonstrate the ability to read, write, speak, and understand the English language throughout the application and testing process. English language proficiency is required to communicate effectively with Air Traffic Control (ATC), to comply with ATC instructions, and to ensure clear and effective crew communication and coordination. Normal restatement of questions as would be done for a native English speaker is permitted, and does not constitute grounds for disqualification. The FAA Aviation English Language Standard (AELS) is the FAA evaluator's benchmark. It requires the applicant to demonstrate at least the International Civil Aviation Organization (ICAO) level 4 standard.

Knowledge Test Requirements

In order to take the Private Pilot Knowledge Test, you must provide proper identification. To verify your eligibility to take the test, you must also provide one of the following in accordance with the requirements of 14 CFR part 61:

- 14 CFR part 61, section 61.35 lists the prerequisites for taking the knowledge test, to include the minimum age an applicant must be to take the test.
  - Received an endorsement, if required by this part, from an authorized instructor certifying that the applicant accomplished the appropriate ground-training or a home-study course required by this part for the certificate or rating sought and is prepared for the knowledge test;
  - Proper identification at the time of application that contains the applicant's— ○ (i) Photograph; ○ (ii) Signature; ○ (iii) Date of birth; and
    - ○ (iv) If the permanent mailing address is a post office box number, then the applicant must provide a government-issued residential address.
- 14 CFR part 61, section 61.49 acceptable forms of retest authorization for **all** Private Pilot tests:

 An applicant retesting **after failure** is required to submit the applicable Airman Knowledge Test Report indicating failure, along with an endorsement from an authorized instructor who gave the applicant the required additional training. The endorsement must certify that the applicant is competent to pass the test. The test proctor must retain the original failed Airman Knowledge Test Report presented as authorization and attach it to the applicable sign-in/out log.

Note: *If the applicant no longer possesses the original Airman Knowledge Test Report, he or she may request a duplicate replacement issued by the Airmen Certification Branch.*

- Acceptable forms of authorization for Private Pilot Canadian Conversion (PCP) only:
  Confirmation of Verification Letter issued by the Office of Foundational Business, Civil Aviation Division, Airmen Certification Branch (Knowledge Testing Authorization Requirements Matrix). Requires **no** instructor endorsement or other form of written authorization.

Knowledge Test Centers

The FAA authorizes hundreds of knowledge testing center locations that offer a full range of airman knowledge tests. For information on authorized testing centers and to register for the knowledge test, contact one of the providers listed at www.faa.gov.

Knowledge Test Registration

When you contact a knowledge testing center to register for a test, please be prepared to select a test date, choose a testing center, and make financial arrangements for test payment when you call. You may register for test(s) several weeks in advance, and you may cancel in accordance with the testing center's cancellation policy.

Appendix 2: Knowledge Test Procedures and Tips

Before starting the actual test, the testing center will provide an opportunity to practice navigating through the test. This practice or tutorial session may include sample questions to familiarize the applicant with the look and feel of the software. (e.g., selecting an answer, marking a question for later review, monitoring time remaining for the test, and other features of the testing software.)

Acceptable Materials

The applicant may use the following aids, reference materials, and test materials, as long as the material does not include actual test questions or answers:

Acceptable Materials	Unacceptable Materials	Notes
Supplement book provided by proctor	Written materials that are handwritten, printed, or electronic	Testing centers may provide calculators and/or deny the use of personal calculators

All models of aviation-oriented calculators or small electronic calculators that perform only arithmetic functions	Electronic calculators incorporating permanent or continuous type memory circuits without erasure capability	Unit Member (proctor) may prohibit the use of your calculator if he or she is unable to determine the calculator's erasure capability
Calculators with simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory; or simple functions, such as square root and percentages	Magnetic Cards, magnetic tapes, modules, computer chips, or any other device upon which prewritten programs or information related to the test can be stored and retrieved	Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature
Scales, straightedges, protractors, plotters, navigation computers, blank log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test	Dictionaries	Before, and upon completion of the test, while in the presence of the Unit Member, actuate the ON/OFF switch or RESET button, and perform any other function that ensures erasure of any data stored in memory circuits
Manufacturer's permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures	Any booklet or manual containing instructions related to use of test aids	Unit Member makes the final determination regarding aids, reference materials, and test materials

Test Tips

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

- Carefully read the instructions provided 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 trying to solve it.
- After formulating a response, determine which answer option corresponds with your answer. The answer you choose should completely solve the problem.

- Remember that only one answer is complete and correct. The other possible answers are either incomplete or erroneous.
- If a certain question is difficult for you, mark it for review and return to it after you have answered the less difficult questions. This procedure will enable you to use the available time to maximum advantage.
- When solving a calculation problem, be sure to read all the associated notes.
- For questions involving use of a graph, you may request a printed copy that you can mark in computing your answer. This copy and all other notes and paperwork must be given to the testing center upon completion of the test.

Cheating or Other Unauthorized Conduct

To avoid test compromise, computer testing centers must follow strict security procedures established by the FAA and described 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 that a cheating incident has occurred.

The FAA will investigate and, if the agency determines that cheating or unauthorized conduct has occurred, any airman certificate or rating you hold may be revoked. You will also be prohibited from applying for or taking any test for a certificate or rating under 14 CFR part 61 for a period of 1 year.

Testing Procedures for Applicants Requesting Special Accommodations

An applicant with learning or reading disability may request approval from the Airman Testing Branch through the local Flight Standards District Office (FSDO) or International Field Office/International Field Unit (IFO/IFU) to take 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: 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 typedin words and presents them on a display screen. The device should also have a built-in headphone jack in order to avoid disturbing others during testing.*

Option 3: Request the proctor's assistance in reading specific words or terms from the test questions and/or supplement book. To prevent compromising the testing process, the proctor must be an individual with no aviation background or expertise. The proctor may provide reading assistance only (i.e., no explanation of words or terms). When an applicant requests this option, the FSDO or IFO/IFU inspector must contact the Airman Testing Branch for assistance in selecting the test site and assisting the proctor. Before approving any option, the FSDO or IFO/IFU inspector must advise the applicant of the regulatory certification requirement to be able to read, write, speak, and understand the English language.

Appendix 3: Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report (AKTR) documenting the score with the testing center's raised, embossed seal. The applicant must retain the original AKTR. The instructor must provide instruction in each area of deficiency and provide a logbook endorsement certifying that the applicant has demonstrated satisfactory knowledge in each area. When taking the practical test, the applicant must present the original AKTR to the evaluator, who is required to assess the noted areas of deficiency during the ground portion of the practical test.

An AKTR expires 24 calendar months after the month the applicant completes the knowledge test. If the AKTR expires before completion of the practical test, the applicant must retake the knowledge test.

To obtain a duplicate AKTR due to loss or destruction of the original, the applicant can send a signed request accompanied by a check or money order for $12.00 (U.S. funds), payable to the FAA to the following address:

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

To obtain a copy of the application form or a list of the information required, please see the Airmen Certification Branch webpage.

FAA Knowledge Test Question Coding

Each Task in the ACS includes an ACS code. This ACS code will ultimately be displayed on the AKTR to indicate what Task element was proven deficient on the knowledge test. Instructors can then provide remedial training in the deficient areas, and evaluators can re-test this element during the practical test.

The ACS coding consists of four elements. For example, this code is interpreted as follows:

PA.XI.A.K1:

PA = Applicable ACS (Private Pilot – Airplane) **XI** = Area of Operation (Night Operations)
A = Task (Night Preparation)
K1 = Task element Knowledge 1 (Physiological aspects of vision related to night flying.)

Knowledge test questions are linked to the ACS codes, which will soon replace the system of Learning Statement Codes (LSC). After this transition occurs, the Airman Knowledge Test Report (AKTR) will list an ACS code that correlates to a specific Task element for a given Area of Operation and Task. Remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient Task elements.

The current knowledge test management system does not have the capability to print ACS codes. Until a new test management system is in place, the LSC (e.g., “PLT058”) code will continue to be displayed on the AKTR. The LSC codes are linked to references leading to broad subject areas. By contrast, each ACS code is tied to a unique Task element in the ACS itself. Because of this fundamental difference, there is no one-to-one correlation between LSC codes and ACS codes.

Because all active knowledge test questions for the Private Pilot Airplane Knowledge Test (PAR) have been aligned with the corresponding ACS, evaluators can continue to use LSC codes in conjunction with the ACS for the time being. The evaluator should look up the LSC code(s) on the applicant’s AKTR in the Learning Statement
Reference Guide. After noting the subject area(s), the evaluator can use the corresponding Area(s) of Operation/Task(s) in the ACS to narrow the scope of material for retesting, and to evaluate the applicant’s understanding of that material in the context of the appropriate ACS Area(s) of Operation and Task(s).

The Applicant Name Considerations for the Airman Knowledge Test Report (AKTR) and the Practical Test

Application Form

The applicant uses his or her full legal name on the Airman Certificate and/or Rating Application, FAA Form 87101, using up to 50 characters (including spaces). The applicant may exclude some middle names as necessary to meet the 50-character limit. The AKTR may not reflect the applicant’s full legal name and may differ slightly from the name presented for the practical test.

If the 8710-1 shows a middle name, the AKTR may show that middle name, the correct middle initial, or no entry. The application will process correctly using the Integrated Airman Certificate and Rating Application (IACRA) system, and the Airmen Certification Branch will accept it. If an incorrect middle initial, spelling variant or different middle name is on the AKTR, or if the AKTR has a first name variation of any kind, the evaluator must attach an explanation and a scan or copy of the applicant’s photo identification and attach it to the IACRA or paper application. If the last name on the AKTR has a different spelling or suffix, an IACRA application is not possible. The applicant must use a paper application, and the evaluator must include an explanation and copy of the applicant’s photo identification to avoid a correction notice.

Appendix 4: The Practical Test – Eligibility and Prerequisites

The prerequisite requirements and general eligibility for a practical test and the specific requirements for the original issuance of a Private Pilot Certificate in the airplane category can be found in 14 CFR part 61, sections 61.39(a)(1) through (7) and 61.103.

Appendix 5: Practical Test Roles, Responsibilities, and Outcomes

Applicant Responsibilities

The applicant is responsible for mastering the established standards for knowledge, skill, and risk management elements in all Tasks appropriate to the certificate and rating sought. The applicant should use this ACS, its references, and the Practical Test Checklist in this Appendix in preparation to take the practical test.

Instructor Responsibilities

The instructor is responsible for training the applicant to meet the established standards for knowledge, skill, and risk management elements in all Tasks appropriate to the certificate and rating sought. The instructor should use this ACS and its references as part of preparing the applicant to take the practical test and, if necessary, in retraining the applicant to proficiency in all subject(s) missed on the knowledge test.

Evaluator Responsibilities

An evaluator is:

- Aviation Safety Inspector (ASI);
- Pilot examiner (other than administrative pilot examiners);
- Training center evaluator (TCE);
- Chief instructor, assistant chief instructor or check instructor of pilot school holding examining authority; or
- Instrument Flight Instructor (CFII) conducting an instrument proficiency check (IPC).

The evaluator who conducts the practical test is responsible for determining that the applicant meets the established standards of aeronautical knowledge, skills (flight proficiency), and risk management for the Tasks in the appropriate ACS. This responsibility also includes verifying the experience requirements specified for a certificate or rating.

Prior to beginning the practical test, the evaluator must also determine that the applicant meets FAA Aviation English Language Proficiency Standard by verifying that he or she can understand ATC instructions and communicate in English at a level that is understandable to ATC and other pilots. The evaluator should use the procedures outlined in the AC 60-28, English Language Skill Standards required by 14 CFR parts 61, 63, and 65 (current version) when evaluating the applicant’s ability to meet the standard.

The evaluator must develop a Plan of Action (POA), written in English, to conduct the practical test, and it must include all of the required Areas of Operation and Tasks. The POA must include a scenario that evaluates as many of the required Areas of Operation and Tasks as possible. As the scenario unfolds during the test, the evaluator will introduce problems and emergencies that the applicant must manage. The evaluator has the discretion to modify the POA in order to accommodate unexpected situations as they arise. For example, the evaluator may elect to suspend and later resume a scenario in order to assess certain Tasks.

In the integrated ACS framework, the Areas of Operation contain Tasks that include “knowledge” elements (such as K1), “risk management” elements (such as R1), and “skill” elements (such as S1). Knowledge and risk management elements are primarily evaluated during the knowledge

testing phase of the airman certification process. The evaluator must assess the applicant on all skill elements for each Task included in each Area of Operation of the ACS, unless otherwise noted. The evaluator administering the practical test has the discretion to combine Tasks/elements as appropriate to testing scenarios.

The required minimum elements to include in the POA, unless otherwise noted, from each applicable Task are as follows:

- at least one knowledge element;
- at least one risk management element;
- all skill elements; and
- any Task elements in which the applicant was shown to be deficient on the knowledge test.

Note: *Task elements added to the POA on the basis of being listed on the AKTR may satisfy the other minimum Task element requirements. The missed items on the AKTR are not required to be added in addition to the minimum Task element requirements.*

There is no expectation for testing every knowledge and risk management element in a Task, but the evaluator has discretion to sample as needed to ensure the applicant's mastery of that Task.

Unless otherwise noted in the Task, the evaluator must test each item in the skills section by asking the applicant to perform each one. As safety of flight conditions permit, the evaluator should use questions during flight to test knowledge and risk management elements not evident in the demonstrated skills. To the greatest extent practicable, evaluators should test the applicant's ability to apply and correlate information, and use rote questions only when they are appropriate for the material being tested. If the Task includes an element with subelements, the evaluator may choose the primary element and select at least one sub-element to satisfy the requirement that at least one knowledge element be selected. For example, if the evaluator chooses PA.I.H.K1, he or she must select a sub-element like PA.I.H.K1e to satisfy the requirement to select one knowledge element.

Possible Outcomes of the Test

There are three possible outcomes of the practical test: (1) Temporary Airman Certificate (satisfactory), (2) Notice of Disapproval (unsatisfactory), or (3) Letter of Discontinuance.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator must require the applicant to repeat that Task, or portions of that Task. This provision does not mean that instruction, practice, or the repetition of an unsatisfactory Task is permitted during the practical test.

If the evaluator determines the applicant's skill and abilities are in doubt, the outcome is unsatisfactory and the evaluator must issue a Notice of Disapproval.

Satisfactory Performance

Satisfactory performance requires that the applicant:

- demonstrate the Tasks specified in the Areas of Operation for the certificate or rating sought within the established standards;
- demonstrate mastery of the aircraft by performing each Task successfully;

- demonstrate proficiency and competency in accordance with the approved standards;
- demonstrate sound judgment and exercise aeronautical decision-making/risk management; and
- demonstrate competence in crew resource management in aircraft certificated for more than one required pilot crewmember, or single-pilot competence in an airplane that is certificated for single-pilot operations.

Satisfactory performance will result in the issuance of a temporary certificate.

Unsatisfactory Performance

Typical areas of unsatisfactory performance and grounds for disqualification include:

- Any action or lack of action by the applicant that requires corrective intervention by the evaluator to maintain safe flight.
- Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
- Consistently exceeding tolerances stated in the skill elements of the Task.
- Failure to take prompt corrective action when tolerances are exceeded.
- Failure to exercise risk management.

If, in the judgment of the evaluator, the applicant does not meet the standards for any Task, the applicant fails the Task and associated Area of Operation. The test is unsatisfactory, and the evaluator issues a Notice of
Disapproval. The evaluator lists the Area(s) of Operation in which the applicant did not meet the standard, any Area(s) of Operation not tested, and the number of practical test failures. The evaluator should also list the Tasks failed or Tasks not tested within any unsatisfactory or partially completed Area(s) of Operation. If the applicant's inability to meet English language requirements contributed to the failure of a Task, the evaluator must note "English Proficiency" on the Notice of Disapproval.

The evaluator or the applicant may end the test if the applicant fails a Task. The evaluator may continue the test only with the consent of the applicant. The applicant is entitled to credit only for those Areas of Operation and the associated Tasks performed satisfactorily.

Discontinuance

When it is necessary to discontinue a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator must return all test paperwork to the applicant. The evaluator must prepare, sign, and issue a Letter of Discontinuance that lists those Areas of Operation the applicant successfully completed and the time period remaining to complete the test. The evaluator should advise the applicant to present the Letter of Discontinuance to the evaluator when the practical test resumes in order to receive credit for the items successfully completed. The Letter of Discontinuance becomes part of the applicant's certification file.

Testing after Discontinuance or Unsatisfactory Performance

To avoid having to retake the entire practical test, an applicant has 60 days from the date of a first failure or Letter of Discontinuance to pass the practical test. The evaluator's POA must

include any unsatisfactory or untested Area(s) of Operation and Task(s) as indicated on the current Notice of Disapproval or Letter of Discontinuance. While an applicant may receive credit for any Task(s) successfully completed within a failed or partially tested Area of Operation, the evaluator has discretion to reevaluate any Task(s).

Practical Test Checklist (Applicant)

Appointment with Evaluator

Evaluator's Name: _____
Location: _____
Date/Time: _____
Acceptable Aircraft

- ☐ Aircraft Documents:
- ☐ Airworthiness Certificate
- ☐ Registration Certificate
- ☐ Operating Limitations ☐ Aircraft Maintenance Records:
- ☐ Logbook Record of Airworthiness Inspections and AD Compliance
- ☐ Pilot's Operating Handbook, FAA-Approved Aircraft Flight Manual

Personal Equipment

- ☐ View-Limiting Device
- ☐ Current Aeronautical Charts (Printed or Electronic)
- ☐ Computer and Plotter
- ☐ Flight Plan Form and Flight Logs (printed or electronic)
- ☐ Chart Supplements, Airport Diagrams, and appropriate publications ☐ Current AIM

Personal Records

- ☐ Identification—Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current Medical Certificate or BasicMed qualification
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature or completed IACRA form
- ☐ Original Airman Knowledge Test Report
- ☐ Pilot Logbook with appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval (if applicable)
- ☐ Letter of Discontinuance (if applicable)
- ☐ Approved School Graduation Certificate (if applicable) ☐ Evaluator's Fee (if applicable)

Additional Rating Task Table

For an applicant who holds at least a Private Pilot Certificate and seeks an additional airplane category and/or class rating at the private pilot level, the evaluator must evaluate that applicant in the Areas of Operation and Tasks listed in the Additional Rating Task Table. Please note, however, that the evaluator has the discretion to evaluate the applicant's competence in the remaining Areas of Operation and Tasks.

If the applicant holds two or more category or class ratings at least at the private level, and the ratings table indicates differing required Tasks, the "least restrictive" entry applies. For example, if

"All" and "None" are indicated for one Area of Operation, the "None" entry applies. If "B" and "B, C" are indicated, the "B" entry applies.

Addition of an Airplane Single-Engine Land Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

Private Pilot Rating(s) Held

Areas of Operation	ASES	AMEL	AMES	RH	RG	Glider	Balloon	Airship
I	F,G	F,G	F,G	F,G	F,G	F,G	F,G	F,G
II	D	D	D	A,C,D,F	A,D,F	A,B,C, D,F	A,B,C, D,F	A,B,C, D,F
III	None	None	None	B	None	B	B	B
IV	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N
V	None	None	None	A,B	A	A,B	A,B	A,B
VI	None	None	None	None	None	A,B,C,D	A,B,C,D	None
VII	None	None	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
VIII	None	None	None	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F
IX	A,B,C	A,B,C	A,B,C	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
X	None	None	None	None	None	None	None	None
XI	None	None	None	None	None	A	A	A
XII	A	None	A	A	A	A	A	A

Addition of an Airplane Single-Engine Sea Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

Private Pilot Rating(s) Held

Areas of Operation	ASEL	AMEL	AMES	RH	RG	Glider	Balloon	Airship

I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
II	A,E	A,E	A,E	All	A,B,E,F	All	All	All
III	B	B	None	B	B	B	B	B
IV	A,B,G,H,I, J,K,L	A,B,G, H I,J,K,L	A,B,G, H I,J,K,L	A,B,G,H,I, J,K,L,M, N	A,B,G,H,I, J,K,L,M, N	A,B,G,H,I, J,K,L,M, N	A,B,G,H,I, J,K,L,M, N	A,B,G,H,I, J,K,L,M, N
V	None	None	None	All	A	All	All	All
VI	None	None	None	None	None	All	All	None
VII	None	None	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
VIII	None	None	None	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F
IX	A,B,C	A,B,C	A,B,C	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
X	None	None	None	None	None	None	None	None
XI	None	None	None	None	None	All	All	All
XII	B	None	B	B	B	B	B	B

Addition of an Airplane Multiengine Land Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

Private Pilot Rating(s) Held

Areas of Operation	ASEL	ASES	AMES	RH	RG	Glider	Balloon	Airship
I	F,G	F,G	F,G	F,G	F,G	F,G	F,G	F,G
II	A,B,C, D,F	A,B,C, D,F	D	A,B,C, D,F	A,B,C, D,F	A,B,C, D,F	A,B,C, D,F	A,B,C, D,F
III	None	None	None	B	None	B	B	B
IV	A,B,E,F	A,B,E,F	A,B,E,F	A,B,E, F,N	A,B,E, F,N	A,B,E, F,N	A,B,E, F,N	A,B,E, F,N
V	A	A	None	A,B	A	A,B	A,B	A,B

VI	None	None	None	None	None	A,B,C,D	A,B,C,D	None
VII	A,B,C,D	A,B,C,D	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
VIII	None	None	None	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F
IX	A,C,D, E,F,G	A,C,D, E,F,G	C,E,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G
X*	A,B,C,D	A,B,C,D	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
XI	None	None	None	None	None	A	A	A
XII	None	A	A	A	A	A	A	A

* Tasks C and D are not required for applicants who are instrument-rated and who have previously demonstrated instrument proficiency in a multiengine airplane or for applicants who do not hold an instrument rating.

Addition of an Airplane Multiengine Sea Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

Private Pilot Rating(s) Held

Areas of Operation	AMEL	ASEL	ASES	RH	RG	Glider	Balloon	Airship
I	F,G,I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
II	E	A,B,C,E, F	A,B,C,E, F	A,B,C,E, F	A,B,C,E, F	A,B,C,E, F	A,B,C,E, F	A,B,C,E, F

III	None	None	None	B	None	B	B	B
IV	A,B,G,H, I,J,K,L	A,B,G,H, I,J,K,L	A,B,G,H, I,J,K,L	A,B,G,H,I, J,K,L,N	A,B,G,H,I, J,K,L,N	A,B,G,H,I, J,K,L,N	A,B,G,H,I, J,K,L,N	A,B,G,H,I, J,K,L,N
V	None	A	A	A,B	A	A,B	A,B	A,B
VI	None	None	None	None	None	A,B,C,D	A,B,C,D	None
VII	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
VIII	None	None	None	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F
IX	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G	A,C,D, E,F,G
X*	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
XI	None	None	None	None	None	A	A	A
XII	B	B	None	B	B	B	B	B

* Tasks C and D are not required for applicants who are instrument-rated and who have previously demonstrated instrument proficiency in a multiengine airplane or for applicants who do not hold an instrument rating.

Removal of the “Airplane Multiengine VFR Only” Limitation

The removal of the “Airplane Multiengine VFR Only” limitation, at the private pilot certificate level, requires an applicant to satisfactorily perform the following Area of Operation and Tasks from the Private Pilot – Airplane ACS in a multiengine airplane that has a manufacturer’s published V_{MC} speed.

X.	Multiengine Operations
	Task C: Engine Failure During Flight (by Reference to Instruments) (AMEL, AMES)
	Task D: Instrument Approach and Landing with an Inoperative Engine (Simulated) (by Reference to Instruments) (AMEL, AMES)

Removal of the "Limited to Center Thrust" Limitation

The "Limited to Center Thrust" limitation for the AMEL rating is issued to applicants who complete the practical test for the AMEL rating in an aircraft that does not have a manufacturer's published V_{MC}. When conducting a practical test for the purpose of removing the "Limited to Center Thrust" limitation from the AMEL rating, the applicant must be tested on the multiengine Tasks identified in the table below in a multiengine airplane that has a manufacturer's published V_{MC} speed. This speed would be found on the type certificate data sheet (TCDS) or in the AFM. If the limitation will be removed under parts 121, 135, or 142, it must be done in accordance with an approved curriculum or training program. An applicant who holds an airplane instrument rating and has not demonstrated instrument proficiency in a multiengine airplane with a published V_{MC} shall complete the additional Tasks listed under Removal of the "Airplane Multiengine VFR Only" Limitation section.

IX.	Emergency Operations
	Task E: Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL and AMES)
	Task F: Engine Failure After Liftoff (Simulated) (AMEL, AMES)
	Task G: Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)
X.	**Multiengine Operations**
	Task A: Maneuvering with One Engine Inoperative (AMEL, AMES)
	Task B: V_{MC} Demonstration (AMEL and AMES)

Appendix 6: Safety of Flight

General

Safety of flight must be the prime consideration at all times. The evaluator, applicant, and crew must be constantly alert for other traffic. If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver. The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognize and avoid operations that could lead to an inadvertent stall or spin and inadvertent loss of control.

Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine whether the applicant appropriately divides attention and uses proper visual scanning. In some situations, reading the actual checklist may be impractical or unsafe. In such cases, the evaluator should assess the applicant's performance of published or recommended immediate action "memory" items along with his or her review of the appropriate checklist once conditions permit.

In a single-pilot airplane, the applicant should demonstrate the crew resource management (CRM) principles described as single-pilot resource management (SRM). Proper use is dependent on the specific Task being evaluated. The situation may be such that the use of the checklist while accomplishing elements of an Objective would be either unsafe or impractical in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished is appropriate.

Use of Distractions

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. The evaluator should incorporate realistic distractions during the flight portion of the practical test to evaluate the pilot’s situational awareness and ability to utilize proper control technique while dividing attention both inside and outside the cockpit.

Positive Exchange of Flight Controls

There must always be a clear understanding of who has control of the aircraft. Prior to flight, the pilots involved should conduct a briefing that includes reviewing the procedures for exchanging flight controls.

The FAA recommends a positive three-step process for exchanging flight controls between pilots:

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls," and visually confirms the exchange.

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. There must never be any doubt as to who is flying the aircraft.

Aeronautical Decision-Making, Risk Management, Crew Resource Management and Single-Pilot Resource

Management

Throughout the practical test, the evaluator must assess the applicant’s ability to use sound aeronautical decisionmaking procedures in order to identify hazards and mitigate risk. The evaluator must accomplish this requirement by reference to the risk management elements of the given Task(s), and by developing scenarios that incorporate and combine Tasks appropriate to

assessing the applicant's risk management in making safe aeronautical decisions. For example, the evaluator may develop a scenario that incorporates weather decisions and performance planning.

In assessing the applicant's performance, the evaluator should take note of the applicant's use of CRM and, if appropriate, SRM. CRM/SRM is the set of competencies that includes situational awareness, communication skills, teamwork, task allocation, and decision-making within a comprehensive framework of standard operating procedures (SOP). SRM specifically refers to the management of all resources onboard the aircraft as well as outside resources available to the single pilot.

Deficiencies in CRM/SRM almost always contribute to the unsatisfactory performance of a Task. While evaluation of CRM/SRM may appear to be somewhat subjective, the evaluator should use the risk management elements of the given Task(s) to determine whether the applicant's performance of the Task(s) demonstrates both understanding and application of the associated risk management elements.

Multiengine Considerations

On multiengine practical tests, where the failure of the most critical engine after liftoff is required, the evaluator must consider local atmospheric conditions, terrain, and type of aircraft used. The evaluator must not simulate failure of an engine until attaining at least $V_{SSE}/V_{XSE}/V_{YSE}$ and an altitude not lower than 400 feet AGL.

The applicant must supply an airplane that does not prohibit the demonstration of feathering the propeller in flight. Practical tests conducted in a flight simulation training device (FSTD) can only be accomplished as part of an approved curriculum or training program. Any limitations or powerplant failure will be noted in that program.

For safety reasons, when the practical test is conducted in an airplane, the applicant must perform Tasks that require feathering or shutdown only under conditions and at a position and altitude where it is possible to make a safe landing on an established airport if there is difficulty in unfeathering the propeller or restarting the engine. The evaluator must select an entry altitude that will allow the single-engine demonstration Tasks to be completed no lower than 3,000 feet AGL or the manufacturer's recommended altitude (whichever is higher). If it is not possible to unfeather the propeller or restart the engine while airborne, the applicant and the evaluator should treat the situation as an emergency. At altitudes lower than 3,000 feet AGL, engine failure should be simulated by reducing throttle to idle and then establishing zero thrust.

Engine failure (simulated) during takeoff should be accomplished prior to reaching 50 percent of the calculated V_{MC}.

Single-Engine Considerations

For safety reasons, the evaluator will not request a simulated powerplant failure in a single-engine airplane unless it is possible to safely complete a landing.

High-Performance Airplane Considerations

In some high-performance airplanes, the power setting may have to be reduced below the ACS guidelines power setting to prevent excessively high pitch attitudes greater than 30° nose up.

Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations

Aircraft Requirements & Limitations

14 CFR part 61, section 61.45 prescribes the required aircraft and equipment for a practical test. The regulation states the minimum aircraft registration and airworthiness requirements as well as the minimum equipment requirements, to include the minimum required controls.

Multiengine practical tests require normal engine shutdowns and restarts in the air, to include propeller feathering and unfeathering. The Airplane Flight Manual (AFM) must not prohibit these procedures, but low power settings for cooling periods prior to the actual shutdown in accordance with the AFM are acceptable and encouraged. For a type rating in an airplane not certificated with inflight unfeathering capability, a simulated powerplant failure is acceptable.

If the multiengine airplane used for the practical test does not publish a V_{MC}, then the "Limited to Centerline Thrust" limitation will be added to the certificate issued from this check, unless the applicant has previously demonstrated competence in a multiengine airplane with a published V_{MC}.

If the aircraft presented for the practical test has inoperative instruments or equipment, it must be addressed in accordance with 14 CFR part 91, section 91.213. If the aircraft can be operated in accordance with 14 CFR part 91, section 91.213, then it must be determined if the inoperative instruments or equipment are required to complete the practical test.

Equipment Requirements & Limitations

The equipment examination should be administered before the flight portion of the practical test, but it must be closely coordinated and related to the flight portion.

The aircraft must meet the requirements as outlined in 14 CFR part 61, section 61.45.

To assist in management of the aircraft during the practical test, the applicant is expected to demonstrate automation management skills by utilizing installed, available, or airborne equipment such as autopilot, avionics and systems displays, and/or a flight management system (FMS). The evaluator is expected to test the applicant's knowledge of the systems that are available or installed and operative during both the ground and flight portions of the practical test.

If the practical test is conducted in an aircraft, the applicant is required by 14 CFR part 61, section 61.45(d)(2) to provide an appropriate view limiting device acceptable to the evaluator. The applicant and the evaluator should establish a procedure as to when and how this device should be donned and removed, and brief this procedure before the flight. The device must be used during all testing that requires flight "solely by reference to instruments." This device must prevent the applicant from having visual reference outside the aircraft, but it must not restrict the evaluator's ability to see and avoid other traffic.

Operational Requirements, Limitations, & Task Information

V. Performance and Ground Reference Maneuvers

Task B. Ground Reference Maneuvers

As noted in the skill elements, the evaluator must choose at least one maneuver for the applicant to demonstrate:

- Rectangular course
- S-Turns
- Turns around a point ***VII. Slow Flight and Stalls***

Task A. Maneuvering During Slow Flight

Evaluation criteria for this Task should recognize that environmental factors (e.g., turbulence) may result in a momentary activation of stall warning indicators such as the stall horn. If the applicant recognizes the stall warning indication and promptly makes an appropriate correction, a momentary activation does not constitute unsatisfactory performance on this Task. As with other Tasks, unsatisfactory performance would arise from an applicant's continual deviation from the standard, lack of correction, and/or lack of recognition.

Task B. Power-Off Stalls

Evaluation criteria for a recovery from an approach to stall should not mandate a predetermined value for altitude loss and should not mandate maintaining altitude during recovery. Proper evaluation criteria should consider the multitude of external and internal variables that affect the recovery altitude.

Task C. Power-On Stalls

In some high-performance airplanes, the power setting may have to be reduced below the ACS guidelines power setting to prevent excessively high pitch attitudes greater than 30° nose up. Evaluation criteria for a recovery from an approach to stall should not mandate a predetermined value for altitude loss and should not mandate maintaining altitude during recovery. Proper evaluation criteria should consider the multitude of external and internal variables that affect the recovery altitude.

IX. Emergency Operations

Task E. Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL, AMES)

Engine failure (simulated) during takeoff should be accomplished prior to reaching 50 percent of the calculated V_{MC}.

X. Multiengine Operations

Task B. V_{MC} Demonstration (AMEL, AMES)

Airplanes with normally aspirated engines will lose power as altitude increases because of the reduced density of the air entering the induction system of the engine. This loss of power will result in a V_{MC} lower than the stall speed at higher altitudes. Therefore, recovery should be made at the first indication of loss of directional control, stall warning, or buffet. Do not perform this maneuver by increasing the pitch attitude to a high angle with both engines operating and then reducing power on the critical engine. This technique is hazardous and may result in loss of airplane control.

Task C. Engine Failure During Flight (by Reference to Instruments) (AMEL, AMES)

This Task is not required if an instrument-rated applicant has previously demonstrated instrument proficiency in a multiengine airplane, or if the applicant does not hold an Instrument Airplane Rating. If an applicant holds both a single- and multiengine rating on a pilot certificate, but has not demonstrated instrument proficiency in a multiengine aircraft, that airman's certificate must bear a limitation indicating that multiengine flight is permitted in visual flight rules (VFR) conditions only.

Task D. Instrument Approach and Landing with an Inoperative Engine (Simulated) (by Reference to Instruments)
(AMEL, AMES)

This Task is not required if an instrument-rated applicant has previously demonstrated instrument proficiency in a multiengine airplane, or if the applicant does not hold an Instrument Airplane Rating. If an applicant holds both a single- and multiengine rating on a pilot certificate, but has not demonstrated instrument proficiency in a multiengine aircraft, that airman's certificate must bear a limitation indicating that multiengine flight is permitted in visual flight rules (VFR) conditions only.

Appendix 8: Use of Flight Simulation Training Devices (FSTD) and Aviation Training Devices (ATD): Airplane Single-Engine, Multiengine Land and Sea

Use of Flight Simulator Training Devices

14 CFR part 61, section 61.4, *Qualification and approval of flight simulators and flight training devices*, states in paragraph (a) that each full flight simulator (FFS) and flight training device (FTD) used for training, and for which an airman is to receive credit to satisfy any training, testing, or checking requirement under this chapter, must be qualified and approved by the Administrator for—

> *(1) the training, testing, and checking for which it is used;*
>
> *(2) each particular maneuver, procedure, or crewmember function performed; and*
>
> *(3) the representation of the specific category and class of aircraft, type of aircraft, particular variation within the type of aircraft, or set of aircraft for certain flight training devices.*

14 CFR part 60 prescribes the rules governing the initial and continuing qualification and use of all Flight Simulator Training Devices (FSTD) used for meeting training, evaluation, or flight experience requirements for flight crewmember certification or qualification.

An FSTD is defined in 14 CFR part 60 as an FFS or FTD:

> ***Full Flight Simulator (FFS)****—a replica of a specific type, make, model, or series aircraft. It includes the equipment and computer programs necessary to represent aircraft operations in ground and flight conditions, a visual system providing an out-of-the-flight deck view, a system that provides cues at least equivalent to those of a three-degree-of-freedom motion system, and has the full range of capabilities of the systems installed in*

the device as described in part 60 of this chapter and the qualification performance standard (QPS) for a specific FFS qualification level. (part 1)

***Flight Training Device (FTD)**—a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft flight deck replica. It includes the equipment and computer programs necessary to represent aircraft (or set of aircraft) operations in ground and flight conditions having the full range of capabilities of the systems installed in the device as described in part 60 of this chapter and the QPS for a specific FTD qualification level (part 1).*

The FAA National Simulator Program (NSP) qualifies Level A-D FFSs and Level 4 – 7[1] FTDs. In addition, each operational rule part identifies additional requirements for the approval and use of FSTDs in a training program[2]. Use of an FSTD for the completion of the private pilot airplane practical test is permitted only when accomplished in accordance with an FAA approved curriculum or training program.

Use of Aviation Training Devices

14 CFR part 61, section 61.4(c) states the Administrator may approve a device other than an FFS or FTD for specific purposes. Under this authority, the FAA's General Aviation and Commercial Division provides approvals for aviation training devices (ATD).

Advisory Circular (AC) 61-136A, *FAA Approval of Aviation Training Devices and Their Use for Training and Experience,* provides information and guidance for the required function, performance, and effective use of ATDs for pilot training and aeronautical experience (including instrument currency). FAA issues a letter of authorization (LOA) to an ATD manufacturer approving an ATD as a basic aviation training device (BATD) or an advanced aviation training device (AATD). LOAs are valid for a five-year period with a specific expiration date and include the amount of credit a pilot may take for training and experience requirements.

***Aviation Training Device (ATD)**—a training device, other than an FFS or FTD, that has been evaluated, qualified, and approved by the Administrator. In general, this includes a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit. It includes the hardware and software necessary to represent a category and class of aircraft (or set of aircraft) operations in ground and flight conditions having the appropriate range of capabilities and systems installed in the device as described within AC 61-136 for the specific basic or advanced qualification level.*

***Basic Aviation Training Device (BATD)**—provides an adequate training platform for both procedural and operational performance Tasks specific to instrument experience and*

[1] The FSTD qualification standards in effect prior to part 60 defined a Level 7 FTD for airplanes (see Advisory Circular 12045A, Airplane Flight Training Device Qualification, 1992). This device required high fidelity, airplane specific aerodynamic and flight control models similar to a Level D FFS, but did not require a motion cueing system or visual display system. In accordance with the "grandfather rights" of 14 CFR part 60, section 60.17, these previously qualified devices will retain their qualification basis as long as they continue to meet the standards under which they were originally qualified. There is only one airplane Level 7 FTD with grandfather rights that remains in the U.S. As a result of changes to part 60 that were published in the Federal Register in March 2016, the airplane Level 7 FTD was reinstated with updated evaluation standards. The new Level 7 FTD will require a visual display system for qualification. The minimum qualified Tasks for the Level 7 FTD are described in Table B1B of Appendix B of part 60.

[2] 14 CFR part 121, section 121.407; part 135, section 135.335; part 141, section 141.41; and part 142, section 142.59.

the ground and flight training requirements for the Private Pilot Certificate and Instrument Rating per 14 CFR parts 61 and 141.

***Advanced Aviation Training Device (AATD)**—provides an adequate training platform for both procedural and operational performance Tasks specific to the ground and flight training requirements for the Private Pilot Certificate, Instrument Rating Certificate, Commercial Pilot Certificate, Airline Transport Pilot Certificate, and Flight Instructor Certificate per 14 CFR parts 61 and 141. It also provides an adequate platform for Tasks required for instrument experience and the instrument proficiency check.*

***Note:** ATDs cannot be used for practical tests, aircraft type specific training, or for an aircraft type rating; therefore use of an ATD for the private pilot airplane practical test is not permitted.*

Credit for Time in an FSTD

14 CFR part 61, section 61.109 specifies the minimum aeronautical experience requirements for a person applying for a Private Pilot Certificate. Paragraphs (a) and (b) specify the time requirements for a Private Pilot Certificate in a single-engine airplane and a multiengine airplane, respectively[3][4]. These paragraphs include specific experience requirements that must be completed in an airplane. Paragraph (k) of this section specifies the amount of credit a pilot can take for time in an FFS or FTD. For those that received training in programs outside of 14 CFR part 142, section 61.109(k)(1)[5] applies. For those pilots that received training through a 14 CFR part 142 program, section 61.109(k)(2) applies.

Credit for Time in an ATD

14 CFR part 61, section 61.109 specifies the minimum aeronautical experience requirements for a person applying for a private pilot certificate Paragraphs (a) and (b) specify the time requirements for a private pilot certificate in a single-engine airplane and a multiengine airplane, respectively[6][7]. These paragraphs include specific experience requirements that must be completed in an airplane. Paragraph (k) of this section specifies the amount of credit a pilot can take towards the private pilot certificate aeronautical experience requirements.

In order to credit pilot time, an ATD must be FAA-approved and the time must be provided by an authorized instructor. AC 61-136A, states the LOA for each approved ATD will indicate the credit allowances for pilot training and experience, as provided under 14 CFR parts 61 and 141. Time with an instructor in a BATD and an AATD may be credited towards the aeronautical experience requirements for the private pilot certificate as specified in the LOA for the device used. It is recommended that applicants who intend to take credit for time in a BATD or an AATD towards the aeronautical experience requirements for the private pilot certificate obtain a copy of the LOA for each device used so they have a record for how much credit may be taken. For additional information on the logging of ATD time, reference AC 61-136A.

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[3] The minimum aeronautical experience requirements may be further reduced as permitted in 14 CFR part 61, section [4] .109(k)(3).

[5] As part of program approval, 14 CFR part 141 training providers must also adhere to the requirements for permitted time in an FFS or FTD per Appendix B to 14 CFR part 141.

[6] The minimum aeronautical experience requirements may be further reduced as permitted in 14 CFR part 61, section [7] .109(k)(3).

Use of an FSTD on a Practical Test

14 CFR part 61, section 61.45 specifies the required aircraft and equipment that must be provided for a practical test unless permitted to use an FFS or FTD for the flight portion. 14 CFR part, section 61.64 provides the criteria for using an FSTD for a practical test. Specifically, paragraph (a) states –

> *If an applicant for a certificate or rating uses a flight simulator or flight training device for training or any portion of the practical test, the flight simulator and flight training device—*
>
> *(1) Must represent the category, class, and type (if a type rating is applicable) for the rating sought; and*
>
> *(2) Must be qualified and approved by the Administrator and used in accordance with an approved course of training under 14 CFR part 141 or part 142 of this chapter; or under 14 CFR part 121 or part 135 of this chapter, provided the applicant is a pilot employee of that air carrier operator.*

Therefore, practical tests or portions thereof, when accomplished in an FSTD, may only be conducted by FAA aviation safety inspectors (ASI), aircrew program designees (APD) authorized to conduct such tests in FSTDs in 14 CFR parts 121 or 135, qualified personnel and designees authorized to conduct such tests in FSTDs for 14 CFR part 141 pilot school graduates, or appropriately authorized 14 CFR part 142 Training Center Evaluators (TCE).

In addition, 14 CFR part, 61 section 61.64(b) states if an airplane is not used during the practical test for a type rating for a turbojet airplane (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher FFS and the applicant must meet the specific experience criteria listed. If the experience criteria cannot be met, the applicant can either—

> *(f)(1) […] complete the following Tasks on the practical test in an aircraft appropriate to category, class, and type for the rating sought: Preflight inspection, normal takeoff, normal instrument landing system approach, missed approach, and normal landing; or*
>
> *(f)(2) The applicant's pilot certificate will be issued with a limitation that states: "The [name of the additional type rating] is subject to pilot-in-command limitations," and the applicant is restricted from serving as pilot-in-command in an aircraft of that type.*

When flight Tasks are accomplished in an airplane, certain Task elements may be accomplished through "simulated" actions in the interest of safety and practicality. However, when accomplished in an FFS or FTD, these same actions would not be "simulated." For example, when in an airplane, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, if applicable, and simulating the disconnection of associated electrical, hydraulic, and pneumatics systems. However, when the same emergency condition is addressed in an FSTD, all Task elements must be accomplished as would be expected under actual circumstances.

Similarly, safety of flight precautions taken in the airplane for the accomplishment of a specific maneuver or procedure (such as limiting altitude in an approach to stall or setting maximum airspeed for an engine failure expected to result in a rejected takeoff) need not be taken when an FSTD is used. It is important to understand that, whether accomplished in an airplane or FSTD,

all Tasks and elements for each maneuver or procedure must have the same performance standards applied equally for determination of overall satisfactory performance.

Appendix 9: References

This ACS is based on the following 14 CFR parts, FAA guidance documents, manufacturer's publications, and other documents.

Reference	Title
14 CFR part 39	Airworthiness Directives
14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 68	Requirements for Operating Certain Small Aircraft Without a Medical Certificate
14 CFR part 71	Designation of Class A, B, C, D and E Airspace Areas; Air Traffic Service Routes; and Reporting Points
14 CFR part 91	General Operating and Flight Rules
14 CFR part 93	Special Air Traffic Rules
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 60-28	English Language Skill Standards Required by 14 CFR parts 61, 63, 65, and 107
AC 61-67	Stall and Spin Awareness Training
AC 91-73	Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations
AC 68-1	Alternative Pilot Physical Examination and Education Requirements
AC 91.21-1	Use of Portable Electronic Devices Aboard Aircraft
AIM	Aeronautical Information Manual
FAA-H-8083-1	Aircraft Weight and Balance Handbook
FAA-H-8083-2	Risk Management Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-6	Advanced Avionics Handbook
FAA-H-8083-15	Instrument Flying Handbook
FAA-H-8083-23	Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Handbook

FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
FAA-P-8740-66	Flying Light Twins Safely Pamphlet
POH/AFM	Pilot's Operating Handbook/FAA-Approved Airplane Flight Manual
Other	Chart Supplements
	Navigation Charts
	Navigation Equipment Manual
	USCG Navigation Rules, International-Inland
	NOTAMs

Note: *Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.*

Appendix 10: Abbreviations and Acronyms

The following abbreviations and acronyms are used in the ACS.

Abb./Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AATD	Advanced Aviation Training Device
AC	Advisory Circular
ACS	Airman Certification Standards
AD	Airworthiness Directive
ADM	Aeronautical Decision-Making
AELS	Aviation English Language Standard
AFM	Airplane Flight Manual
AFS	Flight Standards Service
AGL	Above Ground Level
AIM	Aeronautical Information Manual
AKTR	Airman Knowledge Test Report
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
APD	Aircrew Program Designee
ASEL	Airplane Single-Engine Land
ASES	Airplane Single-Engine Sea
ASI	Aviation Safety Inspector
ATC	Air Traffic Control
ATD	Aviation Training Device
BATD	Basic Aviation Training Device
CFIT	Controlled Flight Into Terrain
CFR	Code of Federal Regulations
CG	Center of Gravity
CRM	Crew Resource Management

DA	Decision Altitude
DH	Decision Height
DPE	Designated Pilot Examiner
ELT	Emergency Locator Transmitter
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
FFS	Full Flight Simulator
FMS	Flight Management System
FSDO	Flight Standards District Office
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
ICAO	International Civil Aviation Organization
IFO	International Field Office
IFP	Instrument Flight Procedures
IFU	International Field Unit
Abb./Acronym	**Definition**
IPC	Instrument Proficiency Check
LAHSO	Land and Hold Short Operations
LOA	Letter of Authorization
LSC	Learning Statement Codes
MDA	Minimum Descent Altitude
MEL	Minimum Equipment List
NAS	National Airspace System
NOTAMs	Notices to Airmen
NSP	National Simulator Program
NTSB	National Transportation Safety Board
PA	Private Airplane
PAR	Private Pilot Airplane
PAT	Private Pilot Airplane/Recreational Pilot – Transition
PCP	Private Pilot Canadian Conversion
PIC	Pilot-in-Command
POA	Plan of Action
POH	Pilot's Operating Handbook
PTS	Practical Test Standards
QPS	Qualification Performance Standard
SATR	Special Air Traffic Rules
SFRA	Special Flight Rules Area
SMS	Safety Management System
SOP	Standard Operating Procedures
SRM	Single-Pilot Resource Management
SUA	Special Use Airspace
TCE	Training Center Evaluator
TFR	Temporary Flight Restrictions

UTC	Coordinated Universal Time
V_A	Maneuvering speed
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
V_{MC}	Minimum Control Speed with the Critical Engine Inoperative
V_S	Stall Speed
V_X	Best Angle of Climb Speed
V_Y	Best Rate of Climb Speed
V_{SSE}	Safe, intentional one-engine-inoperative speed. Originally known as safe single-engine speed
V_{XSE}	Best angle of climb speed with one engine inoperative
V_{YSE}	Best rate of climb speed with one engine inoperative
V_{SO}	Stalling Speed or the Minimum Steady Flight Speed in the Landing Configuration