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Administration**

**FAA-S-ACS-6  
(Change 1)**

# **Private Pilot – Airplane Airman Certification Standards**

**June 2016**

**Flight Standards Service  
Washington, DC 20591**

## **Acknowledgments**

The U.S. Department of Transportation, Federal Aviation Administration (FAA), Airman Testing Standards Branch, AFS-630 (P.O. Box 25082, Oklahoma City, OK 73125), developed this Airman Certification Standards (ACS) document with the assistance of the aviation community. The FAA gratefully acknowledges the valuable support from the many individuals and organizations who contributed their time and expertise to assist in this endeavor.

## **Availability**

This ACS is available for download from [www.faa.gov](http://www.faa.gov). Please send comments regarding this document to [AFS630comments@faa.gov](mailto:AFS630comments@faa.gov).

Material in FAA-S-ACS-6 will be effective June 15, 2016. All previous editions of the Private Pilot Practical Test Standards for Airplane (FAA-S-8081-14) will be obsolete as of this date for Airplane applicants.

## Foreword

The Federal Aviation Administration (FAA) has published the Private Pilot – Airplane Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, risk management, and flight proficiency standards for the private pilot certification in the airplane category, single-engine land and sea; and multiengine land and sea classes. This ACS incorporates and supersedes the previous Private Pilot Practical Test Standards for Airplane, FAA-S-8081-14.

The FAA views the ACS as the foundation of its transition to a more integrated and systematic approach to airman certification. 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 internal and external stakeholders identify and evaluate regulatory changes, safety recommendations and other factors that 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 FAA has developed this ACS and its associated guidance in collaboration with a diverse group of aviation training experts. The goal is to drive a systematic approach to all components of the airman certification system, including knowledge test question development and conduct of the practical test. The FAA acknowledges and appreciates the many hours that these aviation experts have contributed toward this goal. This level of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.



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## Revision History

Document#	Description	Revision Date
FAA-S-8081-14B	Private Pilot Practical Test Standards for Airplane, (Changes 1-6)	November 2011
FAA-S-ACS-6	Private Pilot – Airplane Airman Certification Standards	June 1, 2016
FAA-S-ACS-6	Private Pilot – Airplane Airman Certification Standards (Change 1)	June 15, 2016

## Record of Changes

### Change 1 – June 15, 2016

- Corrected grammar and punctuation errors and capitalization inconsistencies throughout the document.
- Removed sub-elements a through o from PA.I.F.K1 (page 11), as they restricted the testability of the Task.
- Updated Appendix 9: References to include items missing from the previous version and remove items not in use (page A-23).
- Updated Appendix 10: Abbreviations and Acronyms to include items missing from the previous version (pages A-24 through A-27).

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## Introduction

### ***Airman Certification Standards Concept***

The goal of the airman certification process is to ensure the applicant possesses the knowledge and skill consistent with the privileges of the certificate or rating being exercised, as well as the ability to manage the risks of flight in order to act as pilot in command.

In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standards Service (AFS) plans, develops, and maintains materials related to airman certification training and testing. These materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. Other materials, such as handbooks in the FAA-H-8083 series, provide guidance to applicants on aeronautical knowledge, risk management, and flight proficiency.

The FAA recognizes that safe operations in today's complex National Airspace System (NAS) require a more systematic integration of aeronautical knowledge, risk management, and flight proficiency standards than those prescribed in the Practical Test Standards (PTS). The FAA further recognizes the need to more clearly calibrate knowledge, risk management, and skills to the level of the certificate or rating, and to align standards with guidance and test questions.

To accomplish these goals, the FAA drew upon the expertise of organizations and individuals across the aviation and training community to develop the Airman Certification Standards (ACS). The ACS integrates the elements of knowledge, risk management, and skill listed in 14 CFR part 61 for each airman certificate or rating. It thus forms a more comprehensive standard for what an applicant must know, consider, and do for the safe conduct and successful completion of each Task to be tested on either the knowledge exam or the practical test.

The ACS significantly improves the knowledge test part of the certification process by enabling the development of test questions, from FAA reference documents, that are meaningful and relevant to safe operation in the NAS. The ACS does not change the tolerances for any skill Task, and it is important for applicants, instructors, and evaluators to understand that the addition of knowledge and risk management elements is not intended to lengthen or expand the scope of the practical test. Rather, the integration of knowledge and risk management elements associated with each Task is intended to enable a more holistic approach to learning, training, and testing. During the ground portion of the practical test, for example, the ACS provides greater context and structure both for retesting items missed on the knowledge test and for sampling the applicant's mastery of knowledge and risk management elements associated with a given skill Task.

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.

**Note:** *As used in the ACS, an evaluator is any person authorized to conduct airman testing (e.g., an FAA aviation safety inspector, designated pilot examiner, or other individual authorized to conduct test for a certificate or rating).*

### ***Using the ACS***

The ACS consists of **Areas of Operation** arranged in a logical sequence, beginning with Preflight Preparation and ending with Postflight Procedures. Each Area of Operation includes **Tasks** appropriate to that Area of Operation. Each Task begins with an **Objective** stating what the applicant should know, consider, and/or do. The ACS then lists the aeronautical knowledge, risk management, and skill elements relevant to the specific Task, along with the conditions and standards for acceptable performance. The ACS uses **Notes** to emphasize special considerations. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The term "may" denotes items that are recommended but not required. The **References** for each Task indicate the source

material for Task elements. For example, in Tasks such as “Current and forecast weather for departure, en route and arrival phases of flight.” (PA.I.C.K3), the applicant must be prepared for questions on any weather product presented in the references for that Task.

The abbreviation(s) within parentheses immediately following a Task refer to the category and/or class aircraft appropriate to that Task. The meaning of each abbreviation is as follows.

ASEL: Airplane – Single-Engine Land  
ASES: Airplane – Single-Engine Sea  
AMEL: Airplane – Multiengine Land  
AMES: Airplane – Multiengine Sea

**Note:** *When administering a test based on this ACS, the Tasks appropriate to the class airplane (ASEL, ASES, AMEL, or AMES) used for the test must be included in the plan of action. The absence of a class indicates the Task is for all classes.*

Each Task in the ACS is coded according to a scheme that includes four elements. For example:

PA.XI.A.K1:

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

Knowledge test questions are mapped to the ACS codes, which will soon replace the system of “Learning Statement Codes.” After this transition occurs, the airman knowledge test report 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 element(s).

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 Learning Statement Codes (e.g., “PLT” codes will continue to be displayed on the Airman Knowledge Test Report (AKTR). The PLT 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 (PLT) codes and ACS codes.

Because all active knowledge test questions for the private pilot airplane (PAR) certificate knowledge test have been aligned with the corresponding ACS, evaluators can use PLT codes in conjunction with the ACS for a more targeted retesting of missed knowledge. The evaluator should look up the PLT 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).

Applicants for a combined private pilot certificate with instrument rating, in accordance with 14 CFR part 61, section 61.65 (a) and (g), must pass all areas designated in the Private Pilot – Airplane ACS and the Instrument Rating – Airplane ACS. Examiners need not duplicate Tasks. For example, only one preflight demonstration would be required; however, the Preflight Task from the Instrument Rating – Airplane ACS would be more extensive than the Preflight Task from the Private Pilot – Airplane ACS to ensure readiness for Instrument Flight Rules (IFR) flight.

A combined checkride should be treated as one practical test, requiring only one application and resulting in only one temporary certificate, disapproval notice, or letter of discontinuance, as applicable. Failure of any Task will result in a failure of the entire test and application. Therefore, even if the deficient maneuver was instrument related and the performance of all visual flight rules (VFR) Tasks was determined to be satisfactory, the applicant will receive a notice of disapproval.

The applicant must pass the private pilot airplane knowledge test before taking the private pilot practical test. The practical test is conducted in accordance with the ACS that is current as of the date of the test. Further, the applicant must pass the ground portion of the practical test before beginning the flight portion.

The ground portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test. The oral questioning will continue throughout the entire practical test.

The FAA encourages applicants and instructors to use the ACS to measure progress during training, and as a reference to ensure the applicant is adequately prepared for the knowledge and practical tests. The FAA will revise the ACS as circumstances require.

## I. Preflight Preparation

<b>Task</b>	<b>Task A. Pilot Qualifications</b>
<b>References</b>	14 CFR parts 61, 91; FAA-H-8083-2, FAA-H-8083-23, FAA-H-8083-25
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.A.K1</i>	1. Currency, regulatory compliance, privileges, and limitations.
<i>PA.I.A.K2</i>	2. Location of airman documents and identification required when exercising private pilot privileges.
<i>PA.I.A.K3</i>	3. The required documents to provide upon inspection.
<i>PA.I.A.K4</i>	4. Pilot logbook/record keeping.
<i>PA.I.A.K5</i>	5. Compensation.
<i>PA.I.A.K6</i>	6. Towing.
<i>PA.I.A.K7</i>	7. Category and class.
<i>PA.I.A.K8</i>	8. Endorsements.
<i>PA.I.A.K9</i>	9. Medical certificates: class, expiration, privileges, temporary disqualifications.
<i>PA.I.A.K10</i>	10. Drugs, alcohol regulatory restrictions that affect the pilot's ability to operate safely.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.A.R1</i>	1. Distinguishing proficiency versus currency.
<i>PA.I.A.R2</i>	2. Setting personal minimums.
<i>PA.I.A.R3</i>	3. Maintaining fitness to fly.
<i>PA.I.A.R4</i>	4. Flying unfamiliar aircraft.
<i>PA.I.A.R5</i>	5. Operating with unfamiliar flight display systems or unfamiliar avionics.
<b>Skills</b>	The applicant demonstrates the ability to apply requirements to:
<i>PA.I.A.S1</i>	1. Act as PIC under VFR in a scenario given by the evaluator.

## I. Preflight Preparation

<b>Task</b>	<b>Task B. Airworthiness Requirements</b>
<b>References</b>	14 CFR parts 39, 43, 91; FAA-H-8083-2, FAA-H-8083-25
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with airworthiness requirements, including aircraft certificates.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.B.K1</i>	1. General airworthiness requirements and compliance for airplanes.
<i>PA.I.B.K1a</i>	a. Certificate location and expiration dates
<i>PA.I.B.K1b</i>	b. Required inspections
<i>PA.I.B.K1c</i>	c. Inspection requirements
<i>PA.I.B.K2</i>	2. Individuals who can perform maintenance on the aircraft, including A&P and IA roles in aircraft maintenance and inspections.
<i>PA.I.B.K3</i>	3. Pilot-performed preventive maintenance.
<i>PA.I.B.K4</i>	4. Equipment requirements for day and night flight for example: flying with inoperative equipment (approved Minimum Equipment List (MEL), Kinds of Operation Equipment List (KOEL), VFR and placards).
<i>PA.I.B.K5</i>	5. Proving airworthiness (specifics of the aircraft—compliance with Airworthiness Directives or applicability of Safety Bulletins).
<i>PA.I.B.K6</i>	6. Obtaining a special flight permit.
<i>PA.I.B.K7</i>	7. Experimental aircraft airworthiness.
<i>PA.I.B.K8</i>	8. Equipment malfunctions.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.B.R1</i>	1. Inoperative equipment.
<i>PA.I.B.R2</i>	2. Equipment failure during flight.
<i>PA.I.B.R3</i>	3. Discrepancy records or placards.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.B.S1</i>	1. Locate aircraft airworthiness and registration information.
<i>PA.I.B.S2</i>	2. Determine the aircraft is airworthy in a scenario given by the evaluator.
<i>PA.I.B.S3</i>	3. Explain conditions where flight can be made with inoperative equipment.
<i>PA.I.B.S4</i>	4. Explain requirements for obtaining and flying with a Special Flight Permit.
<i>PA.I.B.S5</i>	5. Locate and explain operating limitations, placards, instrument markings, POH/AFM, weight and balance data, and equipment list.

## I. Preflight Preparation

<b>Task</b>	<b>Task C. Weather Information</b>
<b>References</b>	14 CFR part 91; FAA-H-8083-25; AC 00-6, AC 00-45; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with weather information for a flight under VFR.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.C.K1</i>	1. Acceptable sources of weather data for flight planning purposes.
<i>PA.I.C.K2</i>	2. Weather products required for preflight planning and en route operations.
<i>PA.I.C.K3</i>	3. Current and forecast weather for departure, en route and arrival phases of flight.
<i>PA.I.C.K4</i>	4. Meteorology applicable to the airport, local area, departure, en route, alternate, and destination of a VFR flight in Visual Meteorological Conditions (VMC) to include expected climate and hazardous conditions such as:
<i>PA.I.C.K4a</i>	a. Atmospheric composition and stability
<i>PA.I.C.K4b</i>	b. Wind (e.g. crosswind, tailwind, wind shear, etc.)
<i>PA.I.C.K4c</i>	c. Temperature
<i>PA.I.C.K4d</i>	d. Moisture/precipitation
<i>PA.I.C.K4e</i>	e. Weather system formation, including air masses and fronts
<i>PA.I.C.K4f</i>	f. Clouds
<i>PA.I.C.K4g</i>	g. Turbulence
<i>PA.I.C.K4h</i>	h. Thunderstorms
<i>PA.I.C.K4i</i>	i. Icing and freezing level information
<i>PA.I.C.K4j</i>	j. Fog
<i>PA.I.C.K4k</i>	k. Frost
<i>PA.I.C.K4l</i>	l. METARs and TAFs
<i>PA.I.C.K4m</i>	m. Weather related charts
<i>PA.I.C.K4n</i>	n. Weather advisories
<i>PA.I.C.K4o</i>	o. PIREPs
<i>PA.I.C.K5</i>	5. En route weather resources.
<i>PA.I.C.K6</i>	6. Cockpit displays of digital weather and aeronautical information.
<i>PA.I.C.K7</i>	7. Seasonal weather phenomena.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.C.R1</i>	1. Factors involved in determining a valid go/no-go decision.
<i>PA.I.C.R2</i>	2. Dynamic weather affecting flight.
<i>PA.I.C.R3</i>	3. The limitations of weather equipment.
<i>PA.I.C.R4</i>	4. The limitations of aviation weather reports and forecasts.
<i>PA.I.C.R5</i>	5. The limitations of inflight aviation weather resources.
<i>PA.I.C.R6</i>	6. Identification of alternate airports along the intended route of flight and circumstances that would make diversion prudent.
<i>PA.I.C.R7</i>	7. Identification of weather conditions that may increase or reduce risk for the planned flight.
<i>PA.I.C.R8</i>	8. Establishing personal weather minimums based on the parameters of the flight (e.g. ceilings, visibility, cross-wind component, etc.), and determining when existing and/or forecast weather conditions exceed these minimums.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.C.S1</i>	1. Use available aviation weather resources to obtain an adequate weather briefing.
<i>PA.I.C.S2</i>	2. Correlate weather information to determine alternate requirements.

## I. Preflight Preparation

Task	<i>Task C. Weather Information</i>
<i>PA.I.C.S3</i>	3. Correlate available weather information to make a competent go/no-go or diversion decision.
<i>PA.I.C.S4</i>	4. Update/interpret weather in flight.
<i>PA.I.C.S5</i>	5. Evaluate environmental conditions using valid and reliable information sources to be able to make a competent go/no-go or diversion decision.
<i>PA.I.C.S6</i>	6. Given a scenario based on real-time weather, where it would be appropriate, divert.
<i>PA.I.C.S7</i>	7. Use cockpit displays of digital weather and aeronautical information, as applicable.

## I. Preflight Preparation

<b>Task</b>	<b>Task D. Cross-Country Flight Planning</b>
<b>References</b>	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts; Chart Supplements U.S.; AIM; NOTAMs
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with cross-country flights and VFR flight planning.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.D.K1</i>	1. Route planning, including consideration of special use airspace.
<i>PA.I.D.K2</i>	2. Applying universal coordinated time (UTC) to flight planning.
<i>PA.I.D.K3</i>	3. Converting and calculating time relative to time zones and estimated time of arrival.
<i>PA.I.D.K4</i>	4. Calculating time, climb and descent rates, course, distance, heading, true airspeed and ground speed.
<i>PA.I.D.K5</i>	5. Fuel planning.
<i>PA.I.D.K6</i>	6. Altitude selection accounting for terrain and obstacles, glide distance of the aircraft, VFR cruising altitude, and the effect of wind.
<i>PA.I.D.K7</i>	7. Conditions conducive to icing.
<i>PA.I.D.K8</i>	8. Symbology found on VFR charts including airspace, obstructions and terrain features.
<i>PA.I.D.K9</i>	9. Elements of a VFR flight plan.
<i>PA.I.D.K10</i>	10. Procedures for activating and closing a VFR flight plan in controlled and non-controlled airspace.
<i>PA.I.D.K11</i>	11. Seasonal weather phenomena.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.D.R1</i>	1. The pilot.
<i>PA.I.D.R2</i>	2. The aircraft.
<i>PA.I.D.R3</i>	3. The environment.
<i>PA.I.D.R4</i>	4. External pressures.
<i>PA.I.D.R5</i>	5. Lack of appropriate training when flight is planned in an area different from the pilot's local area, such as in mountains, congested airspace, or location with different weather and topography.
<i>PA.I.D.R6</i>	6. The tendency to complete the flight in spite of adverse change in conditions.
<i>PA.I.D.R7</i>	7. Failure to select the appropriate VFR altitude for the direction of flight.
<i>PA.I.D.R8</i>	8. Limitations of ATC services.
<i>PA.I.D.R9</i>	9. Improper fuel planning.
<i>PA.I.D.R10</i>	10. A route overflying significant environmental influences, such as mountains or large bodies of water.
<i>PA.I.D.R11</i>	11. Flight in areas unsuitable for landing or below personal minimums.
<i>PA.I.D.R12</i>	12. Seasonal weather patterns.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.D.S1</i>	1. Prepare, present and explain a cross-country flight plan assigned by the evaluator including a risk analysis based on real-time weather.
<i>PA.I.D.S2</i>	2. Transfer knowledge used for one region to another region (given local climate, terrain, etc.).
<i>PA.I.D.S3</i>	3. Update fuel planning/manage fuel.
<i>PA.I.D.S4</i>	4. Select appropriate routes, altitudes, and checkpoints.
<i>PA.I.D.S5</i>	5. Recalculate fuel reserves based on a scenario provided by the evaluator.
<i>PA.I.D.S6</i>	6. Create a navigation log and simulate filing a VFR flight plan.
<i>PA.I.D.S7</i>	7. Interpret departure, en route, arrival route with reference to appropriate and current charts.
<i>PA.I.D.S8</i>	8. Explain or demonstrate diversion to alternate.



## I. Preflight Preparation

Task	<b><i>Task D. Cross-Country Flight Planning</i></b>
<i>PA.I.D.S9</i>	9. Apply pertinent information from Chart Supplements U.S.; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.
<i>PA.I.D.S10</i>	10. On the day of the practical test, the final flight plan shall be to the first fuel stop, based on the maximum allowable passengers, baggage, and/or cargo loads using real-time weather and appropriate and current aeronautical charts.
<i>PA.I.D.S11</i>	11. Properly identify airspace, obstructions, and terrain features.
<i>PA.I.D.S12</i>	12. Select appropriate navigation system/facilities and communication frequencies.

## I. Preflight Preparation

<b>Task</b>	<b>Task E. National Airspace System</b>
<b>References</b>	14 CFR parts 71, 91, 93; FAA-H-8083-2; Navigation Charts; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the National Airspace System operating under VFR as a private pilot.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.E.K1</i>	1. Types of airspace/airspace classes and basic VFR weather minimums.
<i>PA.I.E.K2</i>	2. Charting symbology.
<i>PA.I.E.K3</i>	3. Operating rules, pilot certification, and airplane equipment requirements for flying in different classes of airspace.
<i>PA.I.E.K4</i>	4. Special use, special flight rules areas, and other airspace areas.
<i>PA.I.E.K5</i>	5. Temporary flight restrictions.
<i>PA.I.E.K6</i>	6. Aircraft speed limitations in various classes of airspace.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.E.R1</i>	1. Various classes of airspace.
<i>PA.I.E.R2</i>	2. Maintaining VFR at night.
<i>PA.I.E.R3</i>	3. Special use airspace.
<i>PA.I.E.R4</i>	4. Compliance with or avoidance of specific en route airspace.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.E.S1</i>	1. Determine the requirements for basic VFR weather minimums and flying in particular classes of airspace.
<i>PA.I.E.S2</i>	2. Determine the requirements for flying in special use airspace (SUA), and special flight rule areas (SFRA).
<i>PA.I.E.S3</i>	3. Properly identify airspace and operate accordingly with regards to communication and equipment requirements.
<i>PA.I.E.S4</i>	4. Accounts for SUA, SFRA, and temporary flight rules (TFR).

## I. Preflight Preparation

Change 1 (6/15/2016)

<b>Task</b>	<b>Task F. Performance and Limitations</b>
<b>References</b>	FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.F.K1</i>	1. Elements related to performance and limitations (e.g. takeoff and landing, crosswind, tailwind and headwind, density altitude, glide performance, weight and balance, climb, cruise, descent, powerplant considerations) by explaining the use of charts, tables, and data to determine performance.
<i>PA.I.F.K2</i>	2. Factors affecting performance to include atmospheric conditions, pilot technique, aircraft condition, and airport environment.
<i>PA.I.F.K3</i>	3. The effects of loading on performance.
<i>PA.I.F.K4</i>	4. The effects of exceeding weight and balance limits.
<i>PA.I.F.K5</i>	5. The effects of weight and balance changes over the course of the flight.
<i>PA.I.F.K6</i>	6. Aerodynamics.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.F.R1</i>	1. Performance charts.
<i>PA.I.F.R2</i>	2. Limitations.
<i>PA.I.F.R3</i>	3. Variations in flight performance resulting from weight and balance changes during flight.
<i>PA.I.F.R4</i>	4. Published aircraft performance data as it relates to expected performance.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.F.S1</i>	1. Compute weight and balance for a given scenario, which includes practical techniques to resolve out-of-limit calculations and determine if the weight and balance will remain within limits during all phases of flight.
<i>PA.I.F.S2</i>	2. Use aircraft manufacturer's approved performance charts, tables, and data.
<i>PA.I.F.S3</i>	3. Evaluate takeoff and landing performance based on the values calculated.
<i>PA.I.F.S4</i>	4. Evaluate environmental conditions.

## I. Preflight Preparation

<b>Task</b>	<b>Task G. Operation of Systems</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23, FAA-H-8083-25; POH/AFM.
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.G.K1</i>	1. Major components of the systems:
<i>PA.I.G.K1a</i>	a. Primary flight controls and trim
<i>PA.I.G.K1b</i>	b. Flaps, leading edge devices, and spoilers as appropriate
<i>PA.I.G.K1c</i>	c. Powerplant and propeller (basic engine knowledge)
<i>PA.I.G.K1d</i>	d. Landing gear
<i>PA.I.G.K1e</i>	e. Fuel, oil, and hydraulic
<i>PA.I.G.K1f</i>	f. Electrical
<i>PA.I.G.K1g</i>	g. Avionics
<i>PA.I.G.K1h</i>	h. Pitot-static, vacuum/pressure and associated flight instruments
<i>PA.I.G.K1i</i>	i. Environmental
<i>PA.I.G.K1j</i>	j. Deicing and anti-icing
<i>PA.I.G.K1k</i>	k. Water rudders (ASES, AMES)
<i>PA.I.G.K2</i>	2. Normal operation of systems.
<i>PA.I.G.K3</i>	3. Common errors made by pilots.
<i>PA.I.G.K4</i>	4. Abnormal operation of systems (recognition of system failures/malfunctions).
<i>PA.I.G.K5</i>	5. Systems interaction and pilot monitoring of automated systems.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.G.R1</i>	1. Mishandling a system failure.
<i>PA.I.G.R2</i>	2. Troubleshooting system failures/malfunctions.
<i>PA.I.G.R3</i>	3. Mismanagement of airplane systems, which can cause a problem or system failure.
<i>PA.I.G.R4</i>	4. Determining and/or declaring an emergency.
<i>PA.I.G.R5</i>	5. Failure to identify system malfunctions or failures.
<i>PA.I.G.R6</i>	6. Outside/environmental factors affecting the systems, including improper fueling, carburetor ice, extremely cold temperatures, and vapor lock.
<i>PA.I.G.R7</i>	7. Detection and management of threats and errors.
<i>PA.I.G.R8</i>	8. Ineffective monitoring of automation.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.G.S1</i>	1. Explain and operate the airplane's systems.
<i>PA.I.G.S2</i>	2. Use checklist procedures.
<i>PA.I.G.S3</i>	3. Use immediate action items during emergency operations, as applicable.

## I. Preflight Preparation

<b>Task</b>	<b>Task H. Human Factors</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-25; AIM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.H.K1</i>	1. The symptoms, recognition, causes, effects, and corrective actions associated with aeromedical and physiological issues including:
<i>PA.I.H.K1a</i>	a. Hypoxia
<i>PA.I.H.K1b</i>	b. Hyperventilation
<i>PA.I.H.K1c</i>	c. Middle ear and sinus problems
<i>PA.I.H.K1d</i>	d. Spatial disorientation
<i>PA.I.H.K1e</i>	e. Motion sickness
<i>PA.I.H.K1f</i>	f. Carbon monoxide poisoning
<i>PA.I.H.K1g</i>	g. Stress and fatigue
<i>PA.I.H.K1h</i>	h. Dehydration and nutrition
<i>PA.I.H.K1i</i>	i. Hypothermia
<i>PA.I.H.K1j</i>	j. Optical illusions
<i>PA.I.H.K2</i>	2. The effects of alcohol, drugs, and over-the-counter medications, and associated regulations.
<i>PA.I.H.K3</i>	3. The effects of dissolved nitrogen in the bloodstream of a pilot or passenger in flight following scuba diving.
<i>PA.I.H.K4</i>	4. The effects of hazardous attitudes on aeronautical decision-making.
<i>PA.I.H.K5</i>	5. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.I.H.K6</i>	6. The pilot/airplane interface to include: pilot monitoring duties and the interaction with charts and avionics equipment.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks encompassing:
<i>PA.I.H.R1</i>	1. The impact of environmental factors on medication's physiological effects.
<i>PA.I.H.R2</i>	2. Personal risk factors and the conflict between being goal oriented and adhering to personal limitations.
<i>PA.I.H.R3</i>	3. Optical illusions.
<i>PA.I.H.R4</i>	4. The circumstances of the flight (day/night, hot/cold) that affect the pilot's physiology.
<i>PA.I.H.R5</i>	5. Continued VFR flight into Instrument Meteorological Conditions (IMC).
<i>PA.I.H.R6</i>	6. Hazardous attitudes.
<i>PA.I.H.R7</i>	7. Failure to detect and manage threats and errors associated with human factors.
<i>PA.I.H.R8</i>	8. Ineffective monitoring of automation.
<i>PA.I.H.R9</i>	9. Distractions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.H.S1</i>	1. Perform a self assessment including whether the pilot is fit for flight.
<i>PA.I.H.S2</i>	2. Show sound decision-making and judgment (based on reality of circumstances).
<i>PA.I.H.S3</i>	3. Demonstrate automation management and effective monitoring of automated systems.
<i>PA.I.H.S4</i>	4. Establish personal limitations.

## I. Preflight Preparation

<b>Task</b>	<b><i>Task I. Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; AIM; USCG Navigation Rules, International-Inland; POH/AFM; Chart Supplements U.S.
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with water and seaplane characteristics, seaplane bases, maritime rules, and aids to marine navigation.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.I.K1</i>	1. The characteristics of a water surface as affected by features, such as:
<i>PA.I.I.K1a</i>	a. Size and location
<i>PA.I.I.K1b</i>	b. Protected and unprotected areas
<i>PA.I.I.K1c</i>	c. Surface wind
<i>PA.I.I.K1d</i>	d. Direction and strength of water current
<i>PA.I.I.K1e</i>	e. Floating and partially submerged debris
<i>PA.I.I.K1f</i>	f. Sandbars, islands, and shoals
<i>PA.I.I.K1g</i>	g. Vessel traffic and wakes
<i>PA.I.I.K1h</i>	h. Other features unique to the area
<i>PA.I.I.K2</i>	2. Float and hull construction, and their effect on seaplane performance.
<i>PA.I.I.K3</i>	3. The causes of porpoising and skipping, and the pilot action required to prevent or correct these occurrences.
<i>PA.I.I.K4</i>	4. How to locate and identify seaplane bases on charts or in directories.
<i>PA.I.I.K5</i>	5. Operating restrictions at various bases.
<i>PA.I.I.K6</i>	6. Right-of-way, steering, and sailing rules pertinent to seaplane operations.
<i>PA.I.I.K7</i>	7. Marine navigation aids, such as buoys, beacons, lights, and sound signals.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.I.R1</i>	1. Local conditions.
<i>PA.I.I.R2</i>	2. Impact of marine traffic.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.I.S1</i>	1. Assess the water surface characteristics for the proposed flight.
<i>PA.I.I.S2</i>	2. Locate and identify seaplane bases for the region.
<i>PA.I.I.S3</i>	3. Identify restrictions at local bases.
<i>PA.I.I.S4</i>	4. Perform correct right-of-way, steering, and sailing operations.
<i>PA.I.I.S5</i>	5. Identify marine navigation aids in the local region.
<i>PA.I.I.S6</i>	6. Demonstrate understanding of all knowledge Task elements.

## I. Preflight Preparation

<b>Task</b>	<b>Task J. Principles of Flight – Engine Inoperative (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; FAA-P-8740-19, POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the elements related to engine inoperative principles of flight.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.J.K1</i>	1. The “critical engine.”
<i>PA.I.J.K2</i>	2. The effects of density altitude on the $V_{MC}$ demonstration.
<i>PA.I.J.K3</i>	3. The effects of airplane weight and center of gravity (CG) on control.
<i>PA.I.J.K4</i>	4. The relationship of $V_{MC}$ to stall speed.
<i>PA.I.J.K5</i>	5. Reasons for loss of directional control.
<i>PA.I.J.K6</i>	6. Indications of loss of directional control.
<i>PA.I.J.K7</i>	7. The importance of maintaining the proper pitch and bank angle, and the proper coordination of controls.
<i>PA.I.J.K8</i>	8. The loss of directional control recovery procedure.
<i>PA.I.J.K9</i>	9. The planning and decision-making associated with an engine failure during takeoff and single-engine operations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.J.R1</i>	1. Operations with an inoperative engine.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.J.S1</i>	1. Properly plan for engine failure during takeoff, climb, en route, on approach and immediately before landing.
<i>PA.I.J.S2</i>	2. Explain the effects of bank angle on $V_{MC}$ .
<i>PA.I.J.S3</i>	3. Demonstrate understanding of all knowledge Task elements.

## II. Preflight Procedures

<b>Task</b>	<b>Task A. Preflight Assessment</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM; AC 00-6
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with preparing for safe flight accounting for pilot, aircraft, environment, and external factors.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.A.K1</i>	1. Pilot self assessment.
<i>PA.II.A.K2</i>	2. The process to determine if the aircraft is appropriate for the mission by considering load, range, equipment and aircraft capability.
<i>PA.II.A.K3</i>	3. Aircraft preflight inspection including:
<i>PA.II.A.K3a</i>	a. Which items must be inspected
<i>PA.II.A.K3b</i>	b. The reasons for checking each item
<i>PA.II.A.K3c</i>	c. How to detect possible defects
<i>PA.II.A.K3d</i>	d. The associated regulations
<i>PA.II.A.K4</i>	4. Environmental factors that could affect the flight plan:
<i>PA.II.A.K4a</i>	a. Terrain
<i>PA.II.A.K4b</i>	b. Route selection
<i>PA.II.A.K4c</i>	c. Obstruction
<i>PA.II.A.K4d</i>	d. Weather
<i>PA.II.A.K5</i>	5. External pressures.
<i>PA.II.A.K6</i>	6. Seasonal weather phenomena.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.A.R1</i>	1. Environmental factors.
<i>PA.II.A.R2</i>	2. External pressures.
<i>PA.II.A.R3</i>	3. Pilot-related factors.
<i>PA.II.A.R4</i>	4. Aircraft-related factors.
<i>PA.II.A.R5</i>	5. Aviation security concerns.
<i>PA.II.A.R6</i>	6. Seasonal weather patterns.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.A.S1</i>	1. Make proper use of the checklists, and systematically identify and manage pilot-related risks and personal minimums associated with the flight.
<i>PA.II.A.S2</i>	2. Inspect the airplane with reference to an appropriate checklist, explaining which items must be inspected, the reasons for checking each item, and how to detect possible defects.
<i>PA.II.A.S3</i>	3. Verify the airplane is airworthy and in condition for safe flight.
<i>PA.II.A.S4</i>	4. Assess the factors related to the environment (e.g. terrain, route selection, obstruction, weather).
<i>PA.II.A.S5</i>	5. Given the requirements of the flight the applicant uses the appropriate charts, tables, and graphs to determine performance.
<i>PA.II.A.S6</i>	6. Identify seasonal weather phenomena.



## II. Preflight Procedures

<b>Task</b>	<b>Task B. Cockpit Management</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM.
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe cockpit management practices.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.B.K1</i>	1. Pilot and passenger safety restraint systems, requirements, and operational considerations.
<i>PA.II.B.K2</i>	2. Oxygen use regulations, system operational guidelines, and system checks, if applicable.
<i>PA.II.B.K3</i>	3. Safety system rules and operational considerations.
<i>PA.II.B.K4</i>	4. Passenger briefing requirements and appropriate information.
<i>PA.II.B.K5</i>	5. PIC responsibility to have available material for the flight as planned.
<i>PA.II.B.K6</i>	6. The purpose of a checklist.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.B.R1</i>	1. Failure to positively exchange the flight controls.
<i>PA.II.B.R2</i>	2. Use of portable electronic devices.
<i>PA.II.B.R3</i>	3. Use of automation.
<i>PA.II.B.R4</i>	4. Inappropriate use of technology.
<i>PA.II.B.R5</i>	5. The impact of reported discrepancies.
<i>PA.II.B.R6</i>	6. Passenger behavior that could negatively affect safety.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.B.S1</i>	1. Ensure all loose items in the cockpit and cabin are secured.
<i>PA.II.B.S2</i>	2. Organize, access, and determine suitability of material, equipment, and technology in an efficient manner.
<i>PA.II.B.S3</i>	3. Brief occupants on the use of safety belts, shoulder harnesses, doors, sterile cockpit, and flight control freedom of movement, and emergency procedures.
<i>PA.II.B.S4</i>	4. Properly program the navigation equipment available to the pilot on that particular aircraft.
<i>PA.II.B.S5</i>	5. Brief and execute positive exchange of flight controls and PIC responsibility to include identification of the PIC.
<i>PA.II.B.S6</i>	6. Conduct an appropriate pre take off briefing.

## II. Preflight Procedures

<b>Task</b>	<b>Task C. Engine Starting</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with recommended engine starting procedures including proper airplane positioning.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.C.K1</i>	1. Starting under various atmospheric conditions, using external power and hand propping safety.
<i>PA.II.C.K2</i>	2. Starting procedures for carbureted, fuel injected, diesel, Full Authority Digital Engine Control (FADEC), or turbine engines, as applicable.
<i>PA.II.C.K3</i>	3. Equipment limitations (such as starter cycles).
<i>PA.II.C.K4</i>	4. Proper positioning of the airplane.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.C.R1</i>	1. Propeller safety and awareness to include a passenger briefing and dangers associated with hand propping.
<i>PA.II.C.R2</i>	2. Implications of engine(s) starting with a weak or depleted battery, including considerations for use of external power.
<i>PA.II.C.R3</i>	3. Abnormal start.
<i>PA.II.C.R4</i>	4. Hot and cold weather operation.
<i>PA.II.C.R5</i>	5. Electrical system failure following aircraft engine starts.
<i>PA.II.C.R6</i>	6. Engine fires related to over priming/cold weather starting.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.C.S1</i>	1. Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property.
<i>PA.II.C.S2</i>	2. Utilize the checklist as appropriate during engine start.
<i>PA.II.C.S3</i>	3. Start the engine under various atmospheric conditions.

## II. Preflight Procedures

<b>Task</b>	<b>Task D. Taxiing (ASEL, AMEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM; AC 91-73; Chart Supplements U.S.; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxi operations, including runway incursion avoidance.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.D.K1</i>	1. Positioning aircraft controls for wind.
<i>PA.II.D.K2</i>	2. Airport markings, signs, and lights.
<i>PA.II.D.K3</i>	3. Aircraft lighting.
<i>PA.II.D.K4</i>	4. Safe taxi procedures at towered and non-towered airports:
<i>PA.II.D.K4a</i>	a. Maneuvering
<i>PA.II.D.K4b</i>	b. Maintain taxiway/runway alignment
<i>PA.II.D.K4c</i>	c. Situational awareness to avoid runway incursions
<i>PA.II.D.K4d</i>	d. Taxiing to avoid other aircraft/vehicles and hazards
<i>PA.II.D.K5</i>	5. Visual indicators for wind.
<i>PA.II.D.K6</i>	6. Airport information resources including Chart Supplements U.S., airport diagrams, and appropriate publications.
<i>PA.II.D.K7</i>	7. Good cockpit discipline during taxi, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, and communication procedures.
<i>PA.II.D.K8</i>	8. Procedures for appropriate cockpit activities while taxiing including taxi route planning, briefing the location of Hot Spots, communicating and coordinating with ATC.
<i>PA.II.D.K9</i>	9. Rules for entering or crossing runways.
<i>PA.II.D.K10</i>	10. Procedures unique to night operations.
<i>PA.II.D.K11</i>	11. Hazards of low visibility operations.
<i>PA.II.D.K12</i>	12. Proper engine management including leaning, per manufacturer's recommendations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.D.R1</i>	1. Distractions during aircraft taxi.
<i>PA.II.D.R2</i>	2. Improper task management during taxi.
<i>PA.II.D.R3</i>	3. Confirmation or expectation bias as related to taxi instructions.
<i>PA.II.D.R4</i>	4. Taxi instructions/clearances.
<i>PA.II.D.R5</i>	5. Improper resource management.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.D.S1</i>	1. Perform a brake check immediately after the airplane begins moving.
<i>PA.II.D.S2</i>	2. Position the flight controls properly for the existing wind conditions.
<i>PA.II.D.S3</i>	3. Control direction and speed without excessive use of brakes.
<i>PA.II.D.S4</i>	4. Control the airplane during ground operations.
<i>PA.II.D.S4a</i>	a. Maneuvering
<i>PA.II.D.S4b</i>	b. Maintaining taxiway/runway alignment
<i>PA.II.D.S4c</i>	c. Maintaining situational awareness to avoid runway incursions
<i>PA.II.D.S4d</i>	d. Taxiing to avoid other aircraft/vehicles and hazards
<i>PA.II.D.S5</i>	5. Exhibit proper positioning of the aircraft relative to hold lines.
<i>PA.II.D.S6</i>	6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly.
<i>PA.II.D.S7</i>	7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways.
<i>PA.II.D.S8</i>	8. Use an airport diagram or taxi chart during taxi.
<i>PA.II.D.S9</i>	9. Comply with airport/taxiway markings, signals, ATC clearances and instructions.
<i>PA.II.D.S10</i>	10. Use procedures to minimize pilot workload during taxi operations.
<i>PA.II.D.S11</i>	11. Demonstrate briefing procedures to avoid runway incursions.

## II. Preflight Procedures

<b>Task</b>	<b>Task E. Taxiing and Sailing (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2; FAA-H-8083-23, FAA-H-8083-25; POH/AFM; AC 91-73; Chart Supplements U.S.; AIM.
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxiing and sailing operations, including runway incursion avoidance.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.E.K1</i>	1. Positioning aircraft controls for wind, water and sailing procedures, including the use of flaps, doors, water rudder, and power so as to follow the desired course while sailing.
<i>PA.II.E.K2</i>	2. Airport markings, signs, and lights.
<i>PA.II.E.K3</i>	3. Aircraft lighting.
<i>PA.II.E.K4</i>	4. Towered and non-towered airport operations to include ATC communications and pilot actions before takeoff, before landing, and after landing at towered and non-towered airports.
<i>PA.II.E.K5</i>	5. Visual indicators for wind.
<i>PA.II.E.K6</i>	6. Airport information resources including Chart Supplements U.S., airport diagrams, and appropriate publications.
<i>PA.II.E.K7</i>	7. Good cockpit discipline during taxi and sailing, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures.
<i>PA.II.E.K8</i>	8. Procedures for appropriate cockpit activities during taxiing and sailing including taxi route planning, briefing the location of Hot Spots, communicating and coordinating with ATC.
<i>PA.II.E.K9</i>	9. Rules for entering or crossing runways.
<i>PA.II.E.K10</i>	10. Procedures unique to night operations.
<i>PA.II.E.K11</i>	11. Hazards of low visibility operations, other aircraft and vessels.
<i>PA.II.E.K12</i>	12. Proper engine management including leaning, per manufacturer's recommendations.
<i>PA.II.E.K13</i>	13. Requesting progressive taxi instructions if there is any doubt on understanding or ability to comply with a taxi clearance.
<i>PA.II.E.K14</i>	14. Proper technique for the conditions, including idle, plow or step taxi, preventing and correcting for porpoising and skipping.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.E.R1</i>	1. Distractions during aircraft taxi.
<i>PA.II.E.R2</i>	2. Task management during taxi or sailing.
<i>PA.II.E.R3</i>	3. Confirmation or expectation bias as related to taxi instructions.
<i>PA.II.E.R4</i>	4. Recording taxi instructions/clearances.
<i>PA.II.E.R5</i>	5. Improper resource management.
<i>PA.II.E.R6</i>	6. Porpoising and skipping.
<i>PA.II.E.R7</i>	7. Other aircraft, vessels, and hazards while on the water.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.E.S1</i>	1. Perform a brake check immediately after the airplane begins moving.
<i>PA.II.E.S2</i>	2. Position the flight controls, flaps, doors, water rudder, and power correctly for the existing wind, water and sailing conditions and to prevent and correct for porpoising and skipping so as to follow the desired course while sailing.
<i>PA.II.E.S3</i>	3. Uses the appropriate idle, plow, or step taxi technique.
<i>PA.II.E.S4</i>	4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions.
<i>PA.II.E.S5</i>	5. Plan and follow the most favorable course while taxiing or sailing, considering wind, water current, water conditions, and maritime regulations, as appropriate.

## II. Preflight Procedures

<b>Task</b>	<b><i>Task E. Taxiing and Sailing (ASES, AMES)</i></b>
<i>PA.II.E.S6</i>	6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly.
<i>PA.II.E.S7</i>	7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways.
<i>PA.II.E.S8</i>	8. Use an airport diagram or taxi chart during taxi.
<i>PA.II.E.S9</i>	9. Comply with seabase/airport/taxiway markings, signals, signs, ATC clearances and instructions.
<i>PA.II.E.S10</i>	10. Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards.
<i>PA.II.E.S11</i>	11. Demonstrate briefing procedures to avoid runway incursions.

## II. Preflight Procedures

<b>Task</b>	<b><i>Task F. Before Takeoff Check</i></b>
<b>References</b>	FAAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the before takeoff check, including the reasons for checking each item, detecting malfunctions, and ensuring the airplane is in safe operating condition as recommended by the manufacturer.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.II.F.K1</i>	1. The purpose of the run up.
<i>PA.II.F.K2</i>	2. Aircraft performance given expected conditions.
<i>PA.II.F.K3</i>	3. The purpose of a checklist, to include the reasons for checking each item and how to detect malfunctions.
<i>PA.II.F.K4</i>	4. Wake turbulence avoidance.
<i>PA.II.F.K5</i>	5. An emergency locator transmitter (ELT).
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.F.R1</i>	1. Division of attention and scanning.
<i>PA.II.F.R2</i>	2. Different than expected runway.
<i>PA.II.F.R3</i>	3. Failure to properly exchange the flight controls.
<i>PA.II.F.R4</i>	4. Wake turbulence and vessel avoidance.
<i>PA.II.F.R5</i>	5. Improper automation management.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.II.F.S1</i>	1. Position the airplane properly considering other aircraft, vessels, and wind.
<i>PA.II.F.S2</i>	2. Divide attention between inside and outside the cockpit.
<i>PA.II.F.S3</i>	3. Ensure that powerplant and instrumentation are suitable for run up and takeoff, including temperature(s) and pressure(s).
<i>PA.II.F.S4</i>	4. Accomplish the before takeoff checklist, ensure the airplane is in safe operating condition as recommended by the manufacturer, and provide the departure briefing.
<i>PA.II.F.S5</i>	5. Review takeoff performance, such as airspeeds, takeoff distance, departure, and emergency procedures.
<i>PA.II.F.S6</i>	6. Avoid runway incursions and ensure no conflict with traffic prior to taxiing into takeoff position.

### III. Airport and Seaplane Base Operations

<b>Task</b>	<b>Task A. Communications and Light Gun Signals</b>
<b>References</b>	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal and emergency radio communications and ATC light gun signals to conduct radio communications safely while operating the aircraft.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.III.A.K1</i>	1. How to obtain proper radio frequencies.
<i>PA.III.A.K2</i>	2. Communication procedures and ATC phraseology.
<i>PA.III.A.K3</i>	3. ATC light gun signal recognition.
<i>PA.III.A.K4</i>	4. Transponders.
<i>PA.III.A.K5</i>	5. Radar assistance.
<i>PA.III.A.K6</i>	6. Lost communication procedures.
<i>PA.III.A.K7</i>	7. Use of automated weather and airport information.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.III.A.R1</i>	1. Human factors associated with communication.
<i>PA.III.A.R2</i>	2. Human factors associated with declaring an emergency.
<i>PA.III.A.R3</i>	3. Equipment issues that could cause loss of communication.
<i>PA.III.A.R4</i>	4. Improper automation management.
<i>PA.III.A.R5</i>	5. Single-pilot resource management (SRM) and/or crew resource management (CRM).
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.III.A.S1</i>	1. Select appropriate frequencies.
<i>PA.III.A.S2</i>	2. Transmit using phraseology and procedures as specified in the AIM.
<i>PA.III.A.S3</i>	3. Acknowledge radio communications and comply with instructions.

### III. Airport and Seaplane Base Operations

<b>Task</b>	<b>Task B. Traffic Patterns</b>
<b>References</b>	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with traffic patterns.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.III.B.K1</i>	1. Towered and non-towered airport operations and runway selection.
<i>PA.III.B.K2</i>	2. Airport signs and markings, lighting, and wind indicators.
<i>PA.III.B.K3</i>	3. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.III.B.K4</i>	4. Right-of-way rules.
<i>PA.III.B.K5</i>	5. Wake turbulence recognition and resolution.
<i>PA.III.B.K6</i>	6. Wind shear avoidance.
<i>PA.III.B.K7</i>	7. Runway incursion avoidance.
<i>PA.III.B.K8</i>	8. Use of automated weather and airport information.
<i>PA.III.B.K9</i>	9. Use of radio for proper communications.
<i>PA.III.B.K10</i>	10. Parachuting operations.
<i>PA.III.B.K11</i>	11. Approach and landing considerations for different types of aircraft.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.III.B.R1</i>	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.III.B.R2</i>	2. Wake turbulence.
<i>PA.III.B.R3</i>	3. Failure to maintain situational awareness.
<i>PA.III.B.R4</i>	4. Failure to maintain separation from other aircraft.
<i>PA.III.B.R5</i>	5. Operating considerations of various aircraft types.
<i>PA.III.B.R6</i>	6. Go-around or rejected takeoff, if appropriate.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.III.B.S1</i>	1. Properly identify and interpret airport/seaplane base runways, taxiways, markings, and lighting.
<i>PA.III.B.S2</i>	2. Comply with proper traffic pattern procedures.
<i>PA.III.B.S3</i>	3. Maintain proper spacing from other aircraft.
<i>PA.III.B.S4</i>	4. Correct for wind drift to maintain the proper ground track.
<i>PA.III.B.S5</i>	5. Maintain orientation with the runway/landing area in use.
<i>PA.III.B.S6</i>	6. Maintain traffic pattern altitude, $\pm 100$ feet, and the appropriate airspeed, $\pm 10$ knots.
<i>PA.III.B.S7</i>	7. Maintain an awareness of the position of other aircraft in the pattern.



#### IV. Takeoffs, Landing and Go-Arounds

<b>Task</b>	<b>Task A. Normal Takeoff and Climb</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a normal takeoff, climb operations, and rejected takeoff procedures. <b>Note:</b> <i>If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.A.K1	1. Takeoff distance.
PA.IV.A.K2	2. Takeoff power.
PA.IV.A.K3	3. Atmospheric conditions.
PA.IV.A.K4	4. Wind conditions and effects.
PA.IV.A.K5	5. The application of $V_X$ or $V_Y$ and variations with altitude.
PA.IV.A.K6	6. The manufacturer's recommended emergency procedures for relating to the takeoff sequence.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.A.R1	1. Selection of runway based on wind, pilot capability, and aircraft limitations.
PA.IV.A.R2	2. The demonstrated crosswind component for the aircraft.
PA.IV.A.R3	3. Windshear.
PA.IV.A.R4	4. Tailwind.
PA.IV.A.R5	5. Wake turbulence.
PA.IV.A.R6	6. Go/no-go decision-making.
PA.IV.A.R7	7. Task management.
PA.IV.A.R8	8. Low altitude maneuvering.
PA.IV.A.R9	9. Wire strikes.
PA.IV.A.R10	10. Obstacles on the departure path.
PA.IV.A.R11	11. A rejected takeoff and predetermining takeoff abort criteria.
PA.IV.A.R12	12. Handling engine failure during takeoff and climb.
PA.IV.A.R13	13. Criticality of takeoff distance available.
PA.IV.A.R14	14. Plans for engine failure after takeoff.
PA.IV.A.R15	15. Sterile cockpit environment.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.A.S1	1. Verify ATC clearance and no aircraft is on final before crossing the hold line.
PA.IV.A.S2	2. Verify aircraft is on the assigned/correct runway.
PA.IV.A.S3	3. Ascertain wind direction with or without visible wind direction indicators.
PA.IV.A.S4	4. Determine if the crosswind component is beyond the pilot's ability or aircraft manufacturer maximum demonstrated value.
PA.IV.A.S5	5. Position the flight controls for the existing wind conditions.
PA.IV.A.S6	6. Clear the area; taxi into the takeoff position and align the airplane on the runway centerline/takeoff path.
PA.IV.A.S7	7. Confirm takeoff power; and proper engine and flight instrument indications prior to rotation:
PA.IV.A.S7a	a. Retracts the water rudders, as appropriate, confirm takeoff power and proper engine instrument indications prior to rotation, establishes and maintains the most efficient planning/lift-off attitude, and corrects for porpoising and skipping (ASES, AMES)
PA.IV.A.S8	8. Rotate and lift-off at the recommended airspeed and accelerate to $V_Y$ (or other speed as appropriate for aircraft).

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b><i>Task A. Normal Takeoff and Climb</i></b>
<i>PA.IV.A.S9</i>	9. Establish a pitch attitude that will maintain $V_Y +10/-5$ knots (or other airspeed as appropriate for aircraft).
<i>PA.IV.A.S10</i>	10. Retract the landing gear and flaps in accordance with manufacturer's guidance.
<i>PA.IV.A.S11</i>	11. Maintain takeoff power and $V_Y +10/-5$ knots or to a safe maneuvering altitude.
<i>PA.IV.A.S12</i>	12. Maintain directional control and proper wind drift correction throughout the takeoff and climb.
<i>PA.IV.A.S13</i>	13. Comply with responsible environmental practices, including noise abatement and published departure procedures.
<i>PA.IV.A.S14</i>	14. Complete the appropriate checklist.
<i>PA.IV.A.S15</i>	15. Comply with manufacturer's recommended emergency procedures related to the takeoff sequence.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task B. Normal Approach and Landing</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	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.  <b>Note:</b> <i>If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.B.K1	1. Available landing distance.
PA.IV.B.K2	2. Stabilized approach and interpretation and use of visual glide slope indicators.
PA.IV.B.K3	3. Energy management.
PA.IV.B.K4	4. Atmospheric conditions.
PA.IV.B.K5	5. Wind conditions and effects.
PA.IV.B.K6	6. Emergency procedures during approach and landing.
PA.IV.B.K7	7. Land and hold short operations (LAHSO) or option to refuse LAHSO restriction.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.B.R1	1. Failure to select the appropriate runway based on wind, pilot capability, and airplane limitations.
PA.IV.B.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.B.R3	3. Windshear.
PA.IV.B.R4	4. Tailwind.
PA.IV.B.R5	5. Wake turbulence.
PA.IV.B.R6	6. Task management.
PA.IV.B.R7	7. Low altitude maneuvering.
PA.IV.B.R8	8. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IV.B.R9	9. Failure to follow the right-of-way rules.
PA.IV.B.R10	10. Obstacles on approach and landing paths.
PA.IV.B.R11	11. Failure to recognize the need to perform a go-around/rejected landing.
PA.IV.B.R12	12. Low altitude stall/spin.
PA.IV.B.R13	13. Land and hold short operations. (LAHSO).
PA.IV.B.R14	14. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.B.S1	1. Ensure the aircraft is on the correct/assigned runway.
PA.IV.B.S2	2. Scan the landing runway/areas and adjoining areas for possible obstructions for landing.
PA.IV.B.S3	3. Complete the appropriate checklist.
PA.IV.B.S4	4. Consider the wind conditions, landing surface, and obstructions to select a suitable touchdown point.
PA.IV.B.S5	5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
PA.IV.B.S6	6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 $V_{SO}$ , with wind gust factor applied +10/-5 knots, or as recommended by the aircraft manufacturer for the aircraft type and gust velocity.
PA.IV.B.S7	7. Make smooth, timely, and correct control applications:
PA.IV.B.S7a	a. During the round out and touchdown (ASEL, AMEL)
PA.IV.B.S7b	b. During the round out and touchdown to contact the water at the proper pitch attitude (ASES, AMES)
PA.IV.B.S8	8. Touch down smoothly at a speed that provides little or no aerodynamic lift.

#### IV. Takeoffs, Landings, and Go-Arounds

Task	<i>Task B. Normal Approach and Landing</i>
<i>PA.IV.B.S9</i>	9. Touch down within the available runway or water landing area, within 400 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline.
<i>PA.IV.B.S10</i>	10. Maintain crosswind correction and directional control throughout the approach and landing sequence.
<i>PA.IV.B.S11</i>	11. Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.
<i>PA.IV.B.S12</i>	12. Utilize after landing runway incursion avoidance procedures.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task C. Soft-Field Takeoff and Climb (ASEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a soft-field takeoff, climb operations, and rejected takeoff procedures.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IV.C.K1</i>	1. The importance of weight transfer from wheels to wings.
<i>PA.IV.C.K2</i>	2. P factor in turning tendencies.
<i>PA.IV.C.K3</i>	3. The effects of aircraft configuration.
<i>PA.IV.C.K4</i>	4. The effects of runway surface.
<i>PA.IV.C.K5</i>	5. Takeoff distance.
<i>PA.IV.C.K6</i>	6. Takeoff power.
<i>PA.IV.C.K7</i>	7. Wind conditions and effects.
<i>PA.IV.C.K8</i>	8. Density altitude.
<i>PA.IV.C.K9</i>	9. Application of $V_X$ or $V_Y$ .
<i>PA.IV.C.K10</i>	10. Emergency procedures during takeoff and climb.
<i>PA.IV.C.K11</i>	11. Hazards of other than a hard surfaced runway.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IV.C.R1</i>	1. Failure to select the appropriate runway based on wind, pilot capability, and aircraft limitations.
<i>PA.IV.C.R2</i>	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
<i>PA.IV.C.R3</i>	3. Operating from other than a hard surfaced runway.
<i>PA.IV.C.R4</i>	4. Windshear.
<i>PA.IV.C.R5</i>	5. Tailwind.
<i>PA.IV.C.R6</i>	6. Wake turbulence.
<i>PA.IV.C.R7</i>	7. Failure to recognize the need to perform a go-around/rejected landing.
<i>PA.IV.C.R8</i>	8. Task management.
<i>PA.IV.C.R9</i>	9. Low altitude maneuvering.
<i>PA.IV.C.R10</i>	10. Wire strikes.
<i>PA.IV.C.R11</i>	11. Obstacles on the departure path.
<i>PA.IV.C.R12</i>	12. Rejected takeoffs and failure to identify a takeoff abort point.
<i>PA.IV.C.R13</i>	13. An engine failure during takeoff and climb.
<i>PA.IV.C.R14</i>	14. Failure to use a soft-field takeoff technique on a other than hard surfaced runway.
<i>PA.IV.C.R15</i>	15. Takeoff distance available.
<i>PA.IV.C.R16</i>	16. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IV.C.S1</i>	1. Verify ATC clearance and no aircraft is on final before crossing the hold line.
<i>PA.IV.C.S2</i>	2. Ensure the aircraft is properly configured.
<i>PA.IV.C.S3</i>	3. Ensure the aircraft is on the correct takeoff runway.
<i>PA.IV.C.S4</i>	4. Ascertain wind direction with or without visible wind direction indicators.
<i>PA.IV.C.S5</i>	5. Calculate the crosswind component and determine if it is beyond the pilot ability or aircraft capability.
<i>PA.IV.C.S6</i>	6. Position the flight controls for the existing wind conditions to maximize lift as quickly as possible.
<i>PA.IV.C.S7</i>	7. Clear the area, taxi into the takeoff position and align the airplane on the runway center line without stopping while advancing the throttle smoothly to takeoff power.

#### IV. Takeoffs, Landings, and Go-Arounds

Task	<i>Task C. Soft-Field Takeoff and Climb (ASEL)</i>
<i>PA.IV.C.S8</i>	8. Confirm takeoff power, and proper engine and flight instrument indications prior to rotation.
<i>PA.IV.C.S9</i>	9. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.
<i>PA.IV.C.S10</i>	10. Lift-off at the lowest possible airspeed consistent with safety and remain in ground effect while accelerating to $V_X$ or $V_Y$ , as appropriate.
<i>PA.IV.C.S11</i>	11. Establish a pitch attitude for $V_X$ or $V_Y$ , as appropriate, and maintain selected airspeed +10/-5 knots during the climb.
<i>PA.IV.C.S12</i>	12. Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
<i>PA.IV.C.S13</i>	13. Maintain takeoff power and $V_Y$ +10/-5 knots to a safe maneuvering altitude
<i>PA.IV.C.S14</i>	14. Maintain directional control and proper wind drift correction throughout the takeoff and climb.
<i>PA.IV.C.S15</i>	15. Comply with noise abatement and published departure procedures.
<i>PA.IV.C.S16</i>	16. Complete the appropriate checklist.
<i>PA.IV.C.S17</i>	17. Comply with manufacturer's recommended emergency procedures related to the takeoff sequence.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task D. Soft-Field Approach and Landing (ASEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.D.K1	1. Landing distance.
PA.IV.D.K2	2. Hazards of other than hard surfaced runway.
PA.IV.D.K3	3. Stabilized approach.
PA.IV.D.K4	4. Energy management.
PA.IV.D.K5	5. Wind conditions and effects.
PA.IV.D.K6	6. Density altitude.
PA.IV.D.K7	7. Emergency procedures during approach and landing.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.D.R1	1. Failure to select the appropriate runway based on wind, pilot capability, and aircraft limitations.
PA.IV.D.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.D.R3	3. Operating from other than a hard surfaced runway.
PA.IV.D.R4	4. Losing elevator control, sinking into the soft surface, or striking the prop if moving too slowly.
PA.IV.D.R5	5. Windshear avoidance.
PA.IV.D.R6	6. Tailwind.
PA.IV.D.R7	7. Wake turbulence.
PA.IV.D.R8	8. Task management.
PA.IV.D.R9	9. Low altitude maneuvering.
PA.IV.D.R10	10. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IV.D.R11	11. Failure to follow the right-of-way rules.
PA.IV.D.R12	12. Obstacles on approach and landing paths.
PA.IV.D.R13	13. Failure to recognize the need for a go-around/rejected landing.
PA.IV.D.R14	14. Low altitude stall/spin.
PA.IV.D.R15	15. Performing a soft-field landing after an engine failure.
PA.IV.D.R16	16. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.D.S1	1. Ensure the aircraft is aligned with the correct/assigned runway.
PA.IV.D.S2	2. Scan the landing runway/area for possible obstructions for landing.
PA.IV.D.S3	3. Complete the appropriate approach and landing checklist.
PA.IV.D.S4	4. Consider the wind conditions, landing surface, and obstructions to select a suitable touchdown point.
PA.IV.D.S5	5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
PA.IV.D.S6	6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 $V_{SO}$ , with wind gust factor applied +10 /-5 knots.
PA.IV.D.S7	7. Make smooth, timely, and correct control application 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.S8	8. Touch down softly with minimum sink rate and no drift, with the airplane's longitudinal axis aligned with center of the runway.

#### IV. Takeoffs, Landings, and Go-Arounds

Task	<b><i>Task D. Soft-Field Approach and Landing (ASEL)</i></b>
<i>PA.IV.D.S9</i>	9. Maintain full up elevator during rollout and exit the “soft” area at a speed that would preclude sinking into the surface.
<i>PA.IV.D.S10</i>	10. Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.
<i>PA.IV.D.S11</i>	11. Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
<i>PA.IV.D.S12</i>	12. Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface.
<i>PA.IV.D.S13</i>	13. Utilize after landing runway incursion avoidance procedures.



#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.E.K1	1. The effects of aircraft configuration.
PA.IV.E.K2	2. The effects of runway surface.
PA.IV.E.K3	3. Takeoff distance.
PA.IV.E.K4	4. Takeoff power.
PA.IV.E.K5	5. Obstruction clearance.
PA.IV.E.K6	6. Wind conditions and effects.
PA.IV.E.K7	7. Minimum safe altitude.
PA.IV.E.K8	8. Density altitude.
PA.IV.E.K9	9. Application of $V_X$ or $V_Y$ .
PA.IV.E.K10	10. Emergency procedures during takeoff and climb.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.E.R1	1. Failure to select the appropriate runway based on wind, pilot capability, and aircraft limitations.
PA.IV.E.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.E.R3	3. Operating from other than a hard surfaced runway.
PA.IV.E.R4	4. Obstruction clearance.
PA.IV.E.R5	5. Climb attitude and stall awareness.
PA.IV.E.R6	6. Windshear.
PA.IV.E.R7	7. Tailwind.
PA.IV.E.R8	8. Wake turbulence.
PA.IV.E.R9	9. Failure to recognize the need to perform a go-around/rejected landing.
PA.IV.E.R10	10. Task management.
PA.IV.E.R11	11. Low altitude maneuvering.
PA.IV.E.R12	12. Wire strikes.
PA.IV.E.R13	13. Obstacles on the departure paths.
PA.IV.E.R14	14. Recognition of need for rejected takeoff and identification of takeoff abort criteria.
PA.IV.E.R15	15. Strategies for handling engine failure during takeoff and climb, including recognition that climb at $V_X$ (versus $V_{XSE}$ ) may result in loss of directional control if an engine fails.
PA.IV.E.R16	16. Criticality of takeoff distance available.
PA.IV.E.R17	17. An engine failure after takeoff.
PA.IV.E.R18	18. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.E.S1	1. Verify proper aircraft configuration.
PA.IV.E.S2	2. Verify ATC clearance and no aircraft is on final before crossing the hold line.
PA.IV.E.S3	3. Ensure the aircraft is on the correct takeoff runway.
PA.IV.E.S4	4. Determine wind direction with or without visible wind direction indicators.
PA.IV.E.S5	5. Calculate the crosswind component and determine if it is beyond the pilot ability or aircraft capability.
PA.IV.E.S6	6. Position the flight controls for the existing wind conditions.

#### IV. Takeoffs, Landings, and Go-Arounds

Task	<i>Task E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)</i>
PA.IV.E.S7	7. Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the runway center line.
PA.IV.E.S8	8. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance.
PA.IV.E.S9	9. Confirm takeoff power prior to brake release (if appropriate) and proper engine and flight instrument indications prior to rotation.
PA.IV.E.S10	10. Rotate and lift-off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or $V_X$ .
PA.IV.E.S11	11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or $V_X$ , +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface.
PA.IV.E.S12	12. After clearing the obstacle, establish the pitch attitude for $V_Y$ , accelerate to $V_Y$ , and maintain $V_Y$ , +10/-5 knots, during the climb.
PA.IV.E.S13	13. 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.S14	14. Maintain takeoff power and $V_Y$ +10/-5 knots to a safe maneuvering altitude.
PA.IV.E.S15	15. Maintain directional control and proper wind drift correction throughout the takeoff and climb.
PA.IV.E.S16	16. Comply with noise abatement and published departure procedures.
PA.IV.E.S17	17. Complete the appropriate checklist.
PA.IV.E.S18	18. Comply with manufacturer's recommended emergency procedures related to the takeoff sequence.
PA.IV.E.S19	19. Utilize runway incursion avoidance procedures.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task F. Short-Field Approach and Landing (ASEL, AMEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.F.K1	1. Landing distance.
PA.IV.F.K2	2. Hazards of other than a hard surfaced runway.
PA.IV.F.K3	3. Obstruction clearance.
PA.IV.F.K4	4. Stabilized approach.
PA.IV.F.K5	5. Energy management.
PA.IV.F.K6	6. Wind conditions and effects.
PA.IV.F.K7	7. Density altitude.
PA.IV.F.K8	8. Emergency procedures during approach and landing.
PA.IV.F.K9	9. Land and hold short operations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.F.R1	1. Failure to select the appropriate runway based on wind, pilot capability, and aircraft limitations.
PA.IV.F.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.F.R3	3. Operating from other than a hard surfaced runway.
PA.IV.F.R4	4. Obstruction clearance.
PA.IV.F.R5	5. Climb attitude and stall awareness.
PA.IV.F.R6	6. Wind shear avoidance.
PA.IV.F.R7	7. Tailwind.
PA.IV.F.R8	8. Wake turbulence.
PA.IV.F.R9	9. Task management.
PA.IV.F.R10	10. Low altitude maneuvering.
PA.IV.F.R11	11. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IV.F.R12	12. Failure to follow the right-of-way rules.
PA.IV.F.R13	13. Obstacles on approach and landing paths.
PA.IV.F.R14	14. Failure to recognize the need for a go-around/rejected landing.
PA.IV.F.R15	15. Low altitude stall/spin.
PA.IV.F.R16	16. Land and hold short operations (LAHSO).
PA.IV.F.R17	17. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.F.S1	1. Ensure the aircraft is aligned with the correct/assigned runway.
PA.IV.F.S2	2. Scan the landing runway/area for possible obstructions for landing.
PA.IV.F.S3	3. Complete the appropriate approach and landing checklist.
PA.IV.F.S4	4. Consider the wind conditions, landing surface and obstructions to select a suitable touchdown point.
PA.IV.F.S5	5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
PA.IV.F.S6	6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 $V_{SO}$ , with wind gust factor applied +10 /-5 knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.
PA.IV.F.S7	7. Make smooth, timely, and correct control application during the round out and touchdown.

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<b>Task</b>	<b><i>Task F. Short-Field Approach and Landing (ASEL, AMEL)</i></b>
<i>PA.IV.F.S8</i>	8. Touch down smoothly at an appropriate airspeed.
<i>PA.IV.F.S9</i>	9. Touch down within the available runway, at or within 200 feet beyond the specified point, threshold markings or runway numbers, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the runway center line/landing path.
<i>PA.IV.F.S10</i>	10. Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.
<i>PA.IV.F.S11</i>	11. Execute a safe and timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
<i>PA.IV.F.S12</i>	12. Apply brakes, as necessary, to stop in the shortest distance consistent with safety.
<i>PA.IV.F.S13</i>	13. Utilize after landing runway incursion avoidance procedures.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a confined area takeoff, maximum performance climb operations, and rejected takeoff procedures.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.G.K1	1. The need to calculate a confined area takeoff.
PA.IV.G.K2	2. The effects of aircraft configuration.
PA.IV.G.K3	3. The effects of water surface.
PA.IV.G.K4	4. How to calculate the takeoff distance.
PA.IV.G.K5	5. Takeoff power.
PA.IV.G.K6	6. Obstruction clearance.
PA.IV.G.K7	7. Wind conditions and effects.
PA.IV.G.K8	8. Minimum safe altitude.
PA.IV.G.K9	9. Density altitude.
PA.IV.G.K10	10. Establishing a pitch attitude to maintain $V_x$ and $V_y$ .
PA.IV.G.K11	11. Emergency procedures during takeoff and climb.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.G.R1	1. Failure to select the appropriate takeoff/runway area based on wind, pilot capability, and aircraft limitations.
PA.IV.G.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.G.R3	3. Water conditions.
PA.IV.G.R4	4. Obstruction clearance.
PA.IV.G.R5	5. Climb attitude and stall awareness.
PA.IV.G.R6	6. Windshear.
PA.IV.G.R7	7. Tailwind.
PA.IV.G.R8	8. Wake turbulence.
PA.IV.G.R9	9. Failure to make an appropriate go/no-go decision.
PA.IV.G.R10	10. Task management.
PA.IV.G.R11	11. Low altitude maneuvering.
PA.IV.G.R12	12. Wire strikes.
PA.IV.G.R13	13. Obstacles on the departure paths.
PA.IV.G.R14	14. A rejected takeoff and predetermining takeoff abort criteria.
PA.IV.G.R15	15. An engine failure during takeoff and climb.
PA.IV.G.R16	16. Criticality of takeoff distance available.
PA.IV.G.R17	17. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.G.S1	1. Ensure the aircraft is properly configured.
PA.IV.G.S2	2. Verify ATC clearance and that there is no aircraft on final before crossing the hold short line.
PA.IV.G.S3	3. Ensure the aircraft is on the correct takeoff center path.
PA.IV.G.S4	4. Ascertain wind direction with or without visible wind direction indicators.
PA.IV.G.S5	5. Calculate the crosswind component and determine if it is beyond the pilot's ability or aircraft capability.
PA.IV.G.S6	6. Position the flight controls for the existing wind conditions and set the flaps as recommended.

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Task	<b>Task G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)</b>
PA.IV.G.S7	7. Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the waterway.
PA.IV.G.S8	8. Confirm takeoff power prior to brake release (if appropriate) and proper engine and flight instrument indications prior to rotation.
PA.IV.G.S9	9. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the float/hull to the wings as rapidly as possible.
PA.IV.G.S10	10. Rotate and lift-off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or $V_X$ .
PA.IV.G.S11	11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or $V_X$ , +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface.
PA.IV.G.S12	12. After clearing the obstacle, establish the pitch attitude for $V_Y$ , accelerate to $V_Y$ , and maintain $V_Y$ , +10/-5 knots, during the climb.
PA.IV.G.S13	13. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
PA.IV.G.S14	14. Maintain takeoff power and $V_Y$ +10/-5 knots to a safe maneuvering altitude.
PA.IV.G.S15	15. Maintain directional control and proper wind drift correction throughout the takeoff and climb.
PA.IV.G.S16	16. Comply with noise abatement and published departure procedures.
PA.IV.G.S17	17. Complete the appropriate checklist.
PA.IV.G.S18	18. Comply with manufacturer's recommended emergency procedures related to the takeoff sequence.

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<b>Task</b>	<b>Task H. Confined Area Approach and Landing (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a confined area approach and landing with emphasis on proper use and coordination of flight controls.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IV.H.K1</i>	1. Landing distance.
<i>PA.IV.H.K2</i>	2. Hazards of a confined area.
<i>PA.IV.H.K3</i>	3. Obstruction clearance.
<i>PA.IV.H.K4</i>	4. Stabilized approach.
<i>PA.IV.H.K5</i>	5. Energy management.
<i>PA.IV.H.K6</i>	6. Wind conditions and effects.
<i>PA.IV.H.K7</i>	7. Density altitude.
<i>PA.IV.H.K8</i>	8. Emergency procedures during approach and landing.
<i>PA.IV.H.K9</i>	9. Land and hold short operations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IV.H.R1</i>	1. Failure to select the appropriate waterway based on wind, pilot capability, and aircraft limitations.
<i>PA.IV.H.R2</i>	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
<i>PA.IV.H.R3</i>	3. Water conditions.
<i>PA.IV.H.R4</i>	4. Obstruction clearance.
<i>PA.IV.H.R5</i>	5. Climb attitude and stall awareness.
<i>PA.IV.H.R6</i>	6. Windshear avoidance.
<i>PA.IV.H.R7</i>	7. Tailwind.
<i>PA.IV.H.R8</i>	8. Wake turbulence.
<i>PA.IV.H.R9</i>	9. Task management.
<i>PA.IV.H.R10</i>	10. Low altitude maneuvering.
<i>PA.IV.H.R11</i>	11. Failure to confirm your gear position in an amphibious aircraft.
<i>PA.IV.H.R12</i>	12. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IV.H.R13</i>	13. Failure to follow the right-of-way rules.
<i>PA.IV.H.R14</i>	14. Obstacles on approach and landing paths.
<i>PA.IV.H.R15</i>	15. Failure to recognize the need for a go-around/rejected landing.
<i>PA.IV.H.R16</i>	16. Low altitude stall/spin.
<i>PA.IV.H.R17</i>	17. Land and hold short operations (LAHSO).
<i>PA.IV.H.R18</i>	18. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IV.H.S1</i>	1. Ensure the aircraft is aligned with the correct/assigned waterway.
<i>PA.IV.H.S2</i>	2. Scan the landing runway/area for possible obstructions for landing.
<i>PA.IV.H.S3</i>	3. Complete the appropriate approach and landing checklist.
<i>PA.IV.H.S4</i>	4. Consider the wind conditions, landing surface and obstructions to, and select the proper landing path.
<i>PA.IV.H.S5</i>	5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
<i>PA.IV.H.S6</i>	6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 $V_{SO}$ , with wind gust factor applied +10 /-5 knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.

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Task	<b><i>Task H. Confined Area Approach and Landing (ASES, AMES)</i></b>
<i>PA.IV.H.S7</i>	7. Make smooth, timely, and correct control application during the round out and touchdown.
<i>PA.IV.H.S8</i>	8. Contact the water at the minimum safe airspeed with the proper pitch attitude for the surface conditions.
<i>PA.IV.H.S9</i>	9. Touch down within the available water landing area, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with the desired landing path.
<i>PA.IV.H.S10</i>	10. Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.
<i>PA.IV.H.S11</i>	11. Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
<i>PA.IV.H.S12</i>	12. Apply elevator control as necessary, to stop in the shortest distance consistent with safety.
<i>PA.IV.H.S13</i>	13. Utilize after landing waterway incursion avoidance procedures.



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<b>Task</b>	<b>Task I. Glassy Water Takeoff and Climb (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a glassy water takeoff and climb. <b>Note:</b> <i>If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.I.K1	1. Water effects on operations.
PA.IV.I.K2	2. The effects of glassy water on acceleration and lift-off.
PA.IV.I.K3	3. When and why to use the glassy water takeoff and climb technique.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.I.R1	1. Failure to select the appropriate takeoff path.
PA.IV.I.R3	2. Water conditions.
PA.IV.I.R3	3. Obstruction clearance.
PA.IV.I.R4	4. Climb attitude and stall awareness.
PA.IV.I.R5	5. Windshear.
PA.IV.I.R6	6. Wake turbulence.
PA.IV.I.R7	7. Failure to make a go/no-go decision.
PA.IV.I.R8	8. Task management.
PA.IV.I.R9	9. Low altitude maneuvering.
PA.IV.I.R10	10. Wire strikes.
PA.IV.I.R11	11. Obstacles on the departure path.
PA.IV.I.R12	12. Rejected takeoffs and failure to identify a takeoff abort point.
PA.IV.I.R13	13. An engine failure during takeoff and climb.
PA.IV.I.R14	14. Criticality of takeoff distance available.
PA.IV.I.R15	15. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.I.S1	1. Position the flight controls and flaps for the existing conditions.
PA.IV.I.S2	2. Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the waterway.
PA.IV.I.S3	3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power.
PA.IV.I.S4	4. Establish and maintain an appropriate planing attitude, directional control, correct for porpoising, and increase in water drag.
PA.IV.I.S5	5. Utilize appropriate techniques to lift seaplane from the water considering surface conditions.
PA.IV.I.S6	6. Establish proper attitude/airspeed, and accelerate to $V_{\gamma} +10/-5$ knots during the climb.
PA.IV.I.S7	7. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
PA.IV.I.S8	8. Maintain takeoff power and $V_{\gamma} +10/-5$ knots to a safe and maneuvering altitude.
PA.IV.I.S9	9. Maintain directional control and proper wind drift correction throughout takeoff and climb.
PA.IV.I.S10	10. Complete the appropriate checklist.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task J. Glassy Water Approach and Landing (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a glassy water approach and landing. <b>Note:</b> <i>If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.J.K1	1. When and why glassy water techniques are used.
PA.IV.J.K2	2. How a glassy water approach and landing is executed.
PA.IV.J.K3	3. Landing distance.
PA.IV.J.K4	4. Stabilized approach.
PA.IV.J.K5	5. Energy management.
PA.IV.J.K6	6. Wind conditions and effects.
PA.IV.J.K7	7. Density altitude.
PA.IV.J.K8	8. Emergency procedures during approach and landing.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.J.R1	1. Performing a go-around/rejected landing.
PA.IV.J.R2	2. Low altitude stall/spin.
PA.IV.J.R3	3. Wind shear.
PA.IV.J.R4	4. Tailwind.
PA.IV.J.R5	5. Wake turbulence.
PA.IV.J.R6	6. Task management.
PA.IV.J.R7	7. Low altitude maneuvering.
PA.IV.J.R8	8. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IV.J.R9	9. Failure to follow the right-of-way rules.
PA.IV.J.R10	10. Obstacles on approach and landing paths.
PA.IV.J.R11	11. Failure to adhere to sterile cockpit requirement.
PA.IV.J.R12	12. Failure to confirm your gear position in an amphibious aircraft.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.J.S1	1. Scan the landing waterway/area for possible obstructions for landing.
PA.IV.J.S2	2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft.
PA.IV.J.S3	3. Consider the wind conditions, landing surface, and obstructions to select the most suitable approach path and touchdown area.
PA.IV.J.S4	4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
PA.IV.J.S5	5. Maintain a stabilized approach and the recommended approach airspeed, +10/-5 knots and maintain a touchdown pitch attitude and descent rate from the last altitude reference until touchdown or as recommended by aircraft manufacturer to a safe maneuvering altitude.
PA.IV.J.S6	6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
PA.IV.J.S7	7. Contact the water in the proper pitch attitude, and slow to idle taxi speed.
PA.IV.J.S8	8. Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.
PA.IV.J.S9	9. Complete the appropriate checklist.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task K. Rough Water Takeoff and Climb (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a rough water takeoff and climb. <b>Note:</b> <i>If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.K.K1	1. Water effects on operations.
PA.IV.K.K2	2. The effects of rough water on acceleration and lift-off.
PA.IV.K.K3	3. When and why to use the rough water takeoff and climb technique.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.K.R1	1. Failure to select the appropriate waterway based on wind, pilot capability, and aircraft limitations.
PA.IV.K.R2	2. Exceeding the manufacturer's maximum demonstrated crosswind component.
PA.IV.K.R3	3. Water conditions.
PA.IV.K.R4	4. Obstruction clearance.
PA.IV.K.R5	5. Climb attitude and stall awareness.
PA.IV.K.R6	6. Windshear.
PA.IV.K.R7	7. Tailwind.
PA.IV.K.R8	8. Wake turbulence.
PA.IV.K.R9	9. Failure to make a go/no-go decision.
PA.IV.K.R10	10. Task management.
PA.IV.K.R11	11. Low altitude maneuvering.
PA.IV.K.R12	12. Wire strikes.
PA.IV.K.R13	13. Obstacles on the departure path.
PA.IV.K.R14	14. A rejected takeoff and predetermining takeoff abort criteria.
PA.IV.K.R15	15. An engine failure during takeoff and climb.
PA.IV.K.R16	16. Criticality of takeoff distance available.
PA.IV.K.R17	17. Failure to adhere to sterile cockpit requirement.
PA.IV.K.R18	18. Failure to retract the landing gear in amphibious aircraft.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.K.S1	1. Position the flight controls and flaps for the existing conditions.
PA.IV.K.S2	2. Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the waterway.
PA.IV.K.S3	3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power.
PA.IV.K.S4	4. Establish and maintain an appropriate planing attitude, directional control, and correct for porpoising, skipping, and increase in water drag.
PA.IV.K.S5	5. Lift off at minimum airspeed and accelerate to $V_Y$ , +10/-5 knots before leaving ground effect.
PA.IV.K.S6	6. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.
PA.IV.K.S7	7. Maintain takeoff power and $V_Y$ +10/-5 knots or to a safe maneuvering altitude.
PA.IV.K.S8	8. Maintain directional control and proper wind drift correction throughout takeoff and climb.
PA.IV.K.S9	9. Complete the appropriate checklist.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task L. Rough Water Approach and Landing (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a rough water approach and landing. <b>Note:</b> <i>If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IV.L.K1	1. When and why rough water techniques are used.
PA.IV.L.K2	2. How a rough water approach and landing is executed.
PA.IV.L.K3	3. Landing distance.
PA.IV.L.K4	4. Stabilized approach.
PA.IV.L.K5	5. Energy management.
PA.IV.L.K6	6. Wind conditions and effects.
PA.IV.L.K7	7. Density altitude.
PA.IV.L.K8	8. Emergency procedures during approach and landing.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IV.L.R1	1. Failure to recognize the need to perform a go-around/rejected landing.
PA.IV.L.R2	2. Low altitude stall/spin.
PA.IV.L.R3	3. Windshear.
PA.IV.L.R4	4. Tailwind.
PA.IV.L.R5	5. Wake turbulence.
PA.IV.L.R6	6. Task management.
PA.IV.L.R7	7. Low altitude maneuvering.
PA.IV.L.R8	8. Failure to confirm gear position in an amphibious aircraft.
PA.IV.L.R9	9. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IV.L.R10	10. Failure to follow the right-of-way rules.
PA.IV.L.R11	11. Obstacles on approach and landing paths.
PA.IV.L.R12	12. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IV.L.S1	1. Adequately survey the intended landing area.
PA.IV.L.S2	2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft.
PA.IV.L.S3	3. Select the most suitable approach path and touchdown area.
PA.IV.L.S4	4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.
PA.IV.L.S5	5. Maintain a stabilized approach and the recommended approach airspeed, or in its absence not more than $1.3 V_{SO} + 10/-5$ knots with wind gust factor applied.
PA.IV.L.S6	6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
PA.IV.L.S7	7. Contact the water in the proper pitch attitude, considering the type of rough water.
PA.IV.L.S8	8. Maintain crosswind correction and directional control throughout the approach and landing sequence.
PA.IV.L.S9	9. Complete the appropriate checklist.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task M. Forward Slip to a Landing (ASEL, ASES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a forward slip to a landing.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IV.M.K1</i>	1. When and why forward slips are used and differences between side and forward slips.
<i>PA.IV.M.K2</i>	2. How forward slips are executed.
<i>PA.IV.M.K3</i>	3. Landing distance.
<i>PA.IV.M.K4</i>	4. Stabilized approach.
<i>PA.IV.M.K5</i>	5. Energy management.
<i>PA.IV.M.K6</i>	6. The effects of forward slips affecting indicated airspeed versus true airspeed.
<i>PA.IV.M.K7</i>	7. Wind conditions and effects.
<i>PA.IV.M.K8</i>	8. Density altitude.
<i>PA.IV.M.K9</i>	9. Emergency procedures during approach and landing.
<i>PA.IV.M.K10</i>	10. Land and hold short operations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IV.M.R1</i>	1. Failure to recognize the need to perform a go-around/rejected landing.
<i>PA.IV.M.R2</i>	2. Failure to correlate any crosswind effects with direction of forward slip.
<i>PA.IV.M.R3</i>	3. Failure to transition to a side slip for landing.
<i>PA.IV.M.R4</i>	4. Low altitude stall/spin.
<i>PA.IV.M.R5</i>	5. Windshear.
<i>PA.IV.M.R6</i>	6. Land and hold short operations (LAHSO).
<i>PA.IV.M.R7</i>	7. Tailwind.
<i>PA.IV.M.R8</i>	8. Wake turbulence.
<i>PA.IV.M.R9</i>	9. Task management.
<i>PA.IV.M.R10</i>	10. Low altitude maneuvering.
<i>PA.IV.M.R11</i>	11. Failure to confirm your gear position in an amphibious aircraft.
<i>PA.IV.M.R12</i>	12. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IV.M.R13</i>	13. Failure to follow the right-of-way rules.
<i>PA.IV.M.R14</i>	14. Obstacles on approach and landing paths.
<i>PA.IV.M.R15</i>	15. Aircraft systems affected by performing a forward slip to include airspeed indications and fuel flow.
<i>PA.IV.M.R16</i>	16. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IV.M.S1</i>	1. Select runway/landing area based on wind, landing surface and obstructions, pilot capability and aircraft limitations.
<i>PA.IV.M.S2</i>	2. Calculate the crosswind component and determine if it is beyond the pilot's ability or aircraft capability.
<i>PA.IV.M.S3</i>	3. Select the most suitable touchdown point.
<i>PA.IV.M.S4</i>	4. Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.
<i>PA.IV.M.S5</i>	5. Maintain a ground track aligned with the runway/landing path centerline and an airspeed, which results in minimum float during the round out.
<i>PA.IV.M.S6</i>	6. Make smooth, timely, and correct control application during the recovery from the slip, the round out, and the touchdown.

#### IV. Takeoffs, Landings, and Go-Arounds

Task	<i>Task M. Forward Slip to a Landing (ASEL, ASES)</i>
<i>PA.IV.M.S7</i>	7. Touch down within 400 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline.
<i>PA.IV.M.S8</i>	8. Maintain crosswind correction and directional control throughout the approach and landing sequence.
<i>PA.IV.M.S9</i>	9. Complete the appropriate checklist.
<i>PA.IV.M.S10</i>	10. Execute a timely go-around decision when the approach cannot be made within the tolerances specified above.

#### IV. Takeoffs, Landings, and Go-Arounds

<b>Task</b>	<b>Task N. Go-Around/Rejected Landing</b>
<b>References</b>	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IV.N.K1</i>	1. Landing distance.
<i>PA.IV.N.K2</i>	2. Stabilized approach.
<i>PA.IV.N.K3</i>	3. Energy management.
<i>PA.IV.N.K4</i>	4. Wind conditions and effects.
<i>PA.IV.N.K5</i>	5. Communication procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IV.N.R1</i>	1. Failure to make a timely go-around/rejected landing decision.
<i>PA.IV.N.R2</i>	2. Task management.
<i>PA.IV.N.R3</i>	3. Low altitude maneuvering.
<i>PA.IV.N.R4</i>	4. Slow flight.
<i>PA.IV.N.R5</i>	5. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IV.N.R6</i>	6. Failure to follow the right-of-way rules.
<i>PA.IV.N.R7</i>	7. Obstacles on approach and departure paths.
<i>PA.IV.N.R8</i>	8. Low altitude stall/spin.
<i>PA.IV.N.R9</i>	9. Elevator trim stalls.
<i>PA.IV.N.R10</i>	10. Indecision or changing the go-around/rejected landing decision.
<i>PA.IV.N.R11</i>	11. Failure to adhere to sterile cockpit requirement.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IV.N.S1</i>	1. Make a timely decision to discontinue the approach to landing.
<i>PA.IV.N.S2</i>	2. Apply takeoff power immediately and transition to climb pitch attitude for $V_X$ or $V_Y$ as appropriate +10/-5 knots.
<i>PA.IV.N.S3</i>	3. Retract the flaps, as appropriate.
<i>PA.IV.N.S4</i>	4. Retract the landing gear after establishing a positive rate of climb and in accordance with manufacturer's guidance.
<i>PA.IV.N.S5</i>	5. Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
<i>PA.IV.N.S6</i>	6. Maintain takeoff power and $V_Y$ +10/-5 knots or to a safe maneuvering altitude.
<i>PA.IV.N.S7</i>	7. Maintain directional control and proper wind-drift correction throughout the climb.
<i>PA.IV.N.S8</i>	8. Complete the appropriate checklist.

## V. Performance Maneuvers

<b>Task</b>	<b>Task A. Steep Turns</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.V.A.K1</i>	1. Coordinated flight.
<i>PA.V.A.K2</i>	2. Attitude control at various airspeeds.
<i>PA.V.A.K3</i>	3. Maneuvering speed, including changes in weight.
<i>PA.V.A.K4</i>	4. Controlling rate and radius of turn.
<i>PA.V.A.K5</i>	5. Accelerated stalls.
<i>PA.V.A.K6</i>	6. Overbanking tendencies.
<i>PA.V.A.K7</i>	7. Use of trim in a turn.
<i>PA.V.A.K8</i>	8. Aerodynamics associated with steep turns.
<i>PA.V.A.K9</i>	9. Aerobatic requirements and limitations.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.V.A.R1</i>	1. Failure to divide the attention between airplane control and orientation.
<i>PA.V.A.R2</i>	2. Task management.
<i>PA.V.A.R3</i>	3. Energy management.
<i>PA.V.A.R4</i>	4. Accelerated stalls.
<i>PA.V.A.R5</i>	5. Spins.
<i>PA.V.A.R6</i>	6. Failure to maintain situational awareness.
<i>PA.V.A.R7</i>	7. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.V.A.R8</i>	8. Failure to maintain coordinated flight.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.V.A.S1</i>	1. Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed $V_A$ .
<i>PA.V.A.S2</i>	2. Roll into a coordinated 360° steep turn with a 45° bank.
<i>PA.V.A.S3</i>	3. Perform the Task in the opposite direction, as specified by the evaluator.
<i>PA.V.A.S4</i>	4. Maintain the entry altitude $\pm 100$ feet, airspeed $\pm 10$ knots, bank $\pm 5^\circ$ ; and roll out on the entry heading, $\pm 10^\circ$ or as recommended by aircraft manufacturer to a safe maneuvering altitude.



## V. Performance Maneuvers

Task	<i>Task B. Ground Reference Maneuvers</i>
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.
Knowledge	The applicant demonstrates understanding of:
PA.V.B.K1	1. The effects of wind on ground track and relation to a ground reference point.
PA.V.B.K2	2. The effects of bank angle and groundspeed on rate and radius of turn.
PA.V.B.K3	3. The entry/exit requirements of the maneuver.
PA.V.B.K4	4. The relationship of rectangular course to airport traffic pattern.
PA.V.B.K5	5. Emergency landing considerations while conducting a ground reference maneuver.
PA.V.B.K6	6. S-Turns and how they can be performed to increase separation from other aircraft.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.V.B.R1	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.V.B.R2	2. Low altitude maneuvering.
PA.V.B.R3	3. Task management.
PA.V.B.R4	4. Failure to maintain aircraft control.
PA.V.B.R5	5. Failure to select a suitable emergency landing area.
Skills	The applicant demonstrates the ability to:
PA.V.B.S1	1. Determine the area is clear of terrain, obstacles, and other aircraft and the aircraft will remain in the appropriate airspace.
PA.V.B.S2	2. Select a suitable ground reference.
PA.V.B.S3	3. Identify a suitable emergency landing area.
PA.V.B.S4	4. Plan the maneuver:
PA.V.B.S4a	<b>Note:</b> <i>The evaluator must select at least one maneuver for the applicant to demonstrate.</i> 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.S4b	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.S4c	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.S5	5. Apply adequate wind drift correction during straight and turning flight to maintain a constant ground track if around a rectangular reference area or to track a constant radius turn on each side of the selected reference line or a selected point.
PA.V.B.S6	6. If performing a pattern such as S-Turns, reverse the turn directly over the selected reference line; if performing turns around a point, complete turns in either direction around the selected reference point.
PA.V.B.S7	7. Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.
PA.V.B.S8	8. Maintain altitude $\pm 100$ feet; maintain airspeed $\pm 10$ knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.

## VI. Navigation

<b>Task</b>	<b>Task A. Pilotage and Dead Reckoning</b>
<b>References</b>	14 CFR part 61; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with pilotage and dead reckoning.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VI.A.K1</i>	1. Pilotage and dead reckoning.
<i>PA.VI.A.K2</i>	2. Determining heading, speed, and course.
<i>PA.VI.A.K3</i>	3. Estimating time, speed, and distance.
<i>PA.VI.A.K4</i>	4. True airspeed and density altitude.
<i>PA.VI.A.K5</i>	5. Wind correction angle.
<i>PA.VI.A.K6</i>	6. Checkpoint selection.
<i>PA.VI.A.K7</i>	7. Planned versus actual flight plan calculations and required corrections.
<i>PA.VI.A.K8</i>	8. Topography.
<i>PA.VI.A.K9</i>	9. Plotting a course.
<i>PA.VI.A.K10</i>	10. Magnetic compass errors.
<i>PA.VI.A.K11</i>	11. Route selection.
<i>PA.VI.A.K12</i>	12. Altitude selection.
<i>PA.VI.A.K13</i>	13. Power setting selection.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VI.A.R1</i>	1. Failure to select an altitude that will maintain the minimally required obstacle clearance.
<i>PA.VI.A.R2</i>	2. Failure to identify the correct landmarks or checkpoints.
<i>PA.VI.A.R3</i>	3. Bracketing strategy.
<i>PA.VI.A.R4</i>	4. Failure to select a suitable alternate.
<i>PA.VI.A.R5</i>	5. Failure to maintain situational awareness.
<i>PA.VI.A.R6</i>	6. Task management.
<i>PA.VI.A.R7</i>	7. Fuel consumption that is different than planned.
<i>PA.VI.A.R8</i>	8. Having to divert to an alternate airport.
<i>PA.VI.A.R9</i>	9. Preflight pilot/operation risk assessment and planning.
<i>PA.VI.A.R10</i>	10. Actual groundspeed and time en route that are different than planned.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VI.A.S1</i>	1. Prepare a document or electronic equivalent to be used in flight for comparison with planned fuel consumption and times over waypoints while dead reckoning.
<i>PA.VI.A.S2</i>	2. Follow the preplanned course by reference to landmarks.
<i>PA.VI.A.S3</i>	3. Identify landmarks by relating surface features to chart symbols.
<i>PA.VI.A.S4</i>	4. Navigate by means of pre-computed headings, groundspeeds, and elapsed time.
<i>PA.VI.A.S5</i>	5. Demonstrate use of the magnetic direction indicator in navigation, to include turns to headings.
<i>PA.VI.A.S6</i>	6. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined en route.
<i>PA.VI.A.S7</i>	7. Verify the airplane's position within 3 nautical miles of the flight planned route.
<i>PA.VI.A.S8</i>	8. Arrive at the en route checkpoints within 5 minutes of the initial or revised estimated time of arrival and provide a destination estimate.
<i>PA.VI.A.S9</i>	9. Maintain the selected altitude, $\pm 200$ feet and headings, $\pm 15^\circ$ .

## VI. Navigation

<b>Task</b>	<b><i>Task B. Navigation Systems and Radar Services</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-6, FAA-H-8083-25; Navigation Equipment Manual; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with navigation systems and radar services.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VI.B.K1</i>	1. Ground-based navigation (orientation, course determination, equipment, tests and regulations).
<i>PA.VI.B.K2</i>	2. Satellite-based navigation (e.g. equipment, regulations, authorized use of databases, and Receiver Autonomous Integrity Monitoring (RAIM)).
<i>PA.VI.B.K3</i>	3. Radar assistance to VFR aircraft (e.g. operations, equipment, available services, traffic advisories).
<i>PA.VI.B.K4</i>	4. Transponder (Mode(s) A, C, and S).
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VI.B.R1</i>	1. Failure to manage automated navigation and autoflight systems.
<i>PA.VI.B.R2</i>	2. Task management.
<i>PA.VI.B.R3</i>	3. Failure to maintain situational awareness.
<i>PA.VI.B.R4</i>	4. Limitations of the navigation system in use.
<i>PA.VI.B.R5</i>	5. Automation distractions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VI.B.S1</i>	1. Use an installed electronic navigation system.
<i>PA.VI.B.S2</i>	2. Locate the airplane's position using the navigation system.
<i>PA.VI.B.S3</i>	3. Intercept and track a given course, radial, or bearing, as appropriate.
<i>PA.VI.B.S4</i>	4. Recognize and describe the indication of station passage, if appropriate.
<i>PA.VI.B.S5</i>	5. Recognize signal loss and take appropriate action.
<i>PA.VI.B.S6</i>	6. Use proper communication procedures when utilizing radar services.
<i>PA.VI.B.S7</i>	7. Maintain the appropriate altitude, $\pm 200$ feet and heading $\pm 15^\circ$ or as recommended by aircraft manufacturer to a safe maneuvering altitude.

## VI. Navigation

<b>Task</b>	<b><i>Task C. Diversion</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-25; AIM; Navigation Charts
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with diversion.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VI.C.K1</i>	1. Selecting an alternate destination.
<i>PA.VI.C.K2</i>	2. Deviating from ATC instructions and/or the flight plan.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VI.C.R1</i>	1. Failure to make a timely decision to divert.
<i>PA.VI.C.R2</i>	2. Failure to select an appropriate airport.
<i>PA.VI.C.R3</i>	3. Maintaining airmanship during diversion.
<i>PA.VI.C.R4</i>	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.VI.C.R5</i>	5. Terrain along the diversion flight path.
<i>PA.VI.C.R6</i>	6. Failure to manage tasks associated with diverting to another airport.
<i>PA.VI.C.R7</i>	7. Failure to maintain situational awareness.
<i>PA.VI.C.R8</i>	8. Failure to utilize all available resources while diverting (e.g., automation, ATC, and cockpit planning aids).
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VI.C.S1</i>	1. Select an appropriate diversion airport and route.
<i>PA.VI.C.S2</i>	2. Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport.
<i>PA.VI.C.S3</i>	3. Maintain the appropriate altitude, $\pm 200$ feet and heading, $\pm 15^\circ$ or as recommended by aircraft manufacturer to a safe maneuvering altitude.

## VI. Navigation

<b>Task</b>	<b><i>Task D. Lost Procedures</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-25; AIM; Navigation Charts
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VI.D.K1</i>	1. The value of recording time at waypoints.
<i>PA.VI.D.K2</i>	2. The assistance available if lost (radar services, communication procedures).
<i>PA.VI.D.K3</i>	3. The responsibility and authority of the PIC.
<i>PA.VI.D.K4</i>	4. Deviation from ATC instructions.
<i>PA.VI.D.K5</i>	5. Declaring an emergency.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VI.D.R1</i>	1. Failure to record times over waypoints.
<i>PA.VI.D.R2</i>	2. Failure to manage tasks with lost procedures.
<i>PA.VI.D.R3</i>	3. Situational awareness.
<i>PA.VI.D.R4</i>	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.VI.D.R5</i>	5. Failure to seek assistance or declare an emergency in a deteriorating situation.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VI.D.S1</i>	1. Select an appropriate course of action.
<i>PA.VI.D.S2</i>	2. Maintain an appropriate heading and climbs, if necessary.
<i>PA.VI.D.S3</i>	3. Identify prominent landmarks.
<i>PA.VI.D.S4</i>	4. Use navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate.

## VII. Slow Flight and Stalls

<b>Task</b>	<b>Task A. Maneuvering During Slow Flight</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VII.A.K1</i>	1. This maneuver as it applies to different phases of flight.
<i>PA.VII.A.K2</i>	2. The relationship between angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.
<i>PA.VII.A.K3</i>	3. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).
<i>PA.VII.A.K4</i>	4. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance.
<i>PA.VII.A.K5</i>	5. How environmental elements affect aircraft performance.
<i>PA.VII.A.K6</i>	6. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VII.A.R1</i>	1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude).
<i>PA.VII.A.R2</i>	2. Range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn etc.).
<i>PA.VII.A.R3</i>	3. The effect of environmental elements on aircraft performance.
<i>PA.VII.A.R4</i>	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.VII.A.R5</i>	5. Failure to react appropriately to a stall warning.
<i>PA.VII.A.R6</i>	6. Failure to maintain coordinated flight during the maneuver.
<i>PA.VII.A.R7</i>	7. Failure to manage pitch attitude and power to avoid a stall warning or a stall.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VII.A.S1</i>	1. Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) <b>or</b> 3,000 feet AGL (AMEL, AMES).
<i>PA.VII.A.S2</i>	2. Establish and maintain an airspeed, approximately 5-10 knots above the 1G stall speed, at which the airplane is capable of maintaining controlled flight without activating a stall warning.
<i>PA.VII.A.S3</i>	3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator without activating a stall warning.
<i>PA.VII.A.S4</i>	4. Divide attention between airplane control, traffic avoidance and orientation.
<i>PA.VII.A.S5</i>	5. Maintain the specified altitude, $\pm 100$ feet; specified heading, $\pm 10^\circ$ ; airspeed $+10/-0$ knots; and specified angle of bank, $\pm 10^\circ$ or as recommended by aircraft manufacturer to a safe maneuvering altitude.

## VII. Slow Flight and Stalls

<b>Task</b>	<b>Task B. Power-Off Stalls</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VII.B.K1</i>	1. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.
<i>PA.VII.B.K2</i>	2. How the maneuver relates to a normal flight.
<i>PA.VII.B.K3</i>	3. The components of a stabilized descent.
<i>PA.VII.B.K4</i>	4. Approach to stall indications.
<i>PA.VII.B.K5</i>	5. Full stall indications.
<i>PA.VII.B.K6</i>	6. Which aircraft inputs are required to meet heading or bank angle requirements.
<i>PA.VII.B.K7</i>	7. The stall recovery procedure.
<i>PA.VII.B.K8</i>	8. The importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so.
<i>PA.VII.B.K9</i>	9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes.
<i>PA.VII.B.K10</i>	10. The circumstances that can lead to an inadvertent stall or spin.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VII.B.R1</i>	1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.)
<i>PA.VII.B.R2</i>	2. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).
<i>PA.VII.B.R3</i>	3. The effect of environmental elements on aircraft performance.
<i>PA.VII.B.R4</i>	4. Required actions for aircraft maximum performance and the consequences of failing to do so.
<i>PA.VII.B.R5</i>	5. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.VII.B.R6</i>	6. Failure to follow the stall recovery procedure.
<i>PA.VII.B.R7</i>	7. Failure to maintain coordinated flight during the maneuver.
<i>PA.VII.B.R8</i>	8. Secondary stalls.
<i>PA.VII.B.R9</i>	9. Inadvertent stall or spin.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VII.B.S1</i>	1. Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) <b>or</b> 3,000 feet AGL (AMEL, AMES).
<i>PA.VII.B.S2</i>	2. Establish a stabilized descent in the approach or landing configuration, as specified by the evaluator.
<i>PA.VII.B.S3</i>	3. Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
<i>PA.VII.B.S4</i>	4. Maintain a specified heading, $\pm 10^\circ$ , if in straight flight, and maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 10^\circ$ if in turning flight, while inducing the stall or as recommended by the aircraft manufacturer to a safe maneuvering altitude.
<i>PA.VII.B.S5</i>	5. Recognize and recover promptly after a full stall has occurred.
<i>PA.VII.B.S6</i>	6. Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.
<i>PA.VII.B.S7</i>	7. Execute a stall recovery in accordance with procedures set forth in the AFM/POH.
<i>PA.VII.B.S8</i>	8. Accelerate to $V_X$ or $V_Y$ speed before the final flap retraction and return to the altitude, heading and airspeed specified by the examiner.

## VII. Slow Flight and Stalls

<b>Task</b>	<b>Task C. Power-On Stalls</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-on stalls. <b>Note:</b> ( <a href="#">See Appendix 6 – Safety of Flight.</a> )
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.VII.C.K1	1. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.
PA.VII.C.K2	2. How the maneuver relates to a normal flight.
PA.VII.C.K3	3. Rationale for power setting variances.
PA.VII.C.K4	4. Approach to stall indications.
PA.VII.C.K5	5. Full stall indications.
PA.VII.C.K6	6. Which aircraft inputs are required to meet heading or bank angle requirements.
PA.VII.C.K7	7. Determining the most efficient stall recovery procedure.
PA.VII.C.K8	8. The importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so.
PA.VII.C.K9	9. The aerodynamics associated with stalls and spins in various aircraft configurations and attitudes.
PA.VII.C.K10	10. The circumstances that can lead to an inadvertent stall or spin.
PA.VII.C.K11	11. The circumstances that can lead to an accelerated stall.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.C.R1	1. Aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.)
PA.VII.C.R2	2. The range and limitations of stall warning indicators (e.g. aircraft buffet, stall horn, etc.)
PA.VII.C.R3	3. The effect of environmental elements on aircraft performance.
PA.VII.C.R4	4. Required actions for aircraft maximum performance and the consequences of failing to do so.
PA.VII.C.R5	5. Accelerated stalls.
PA.VII.C.R6	6. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.VII.C.R7	7. Failure to follow the stall recovery procedure.
PA.VII.C.R8	8. Failure to maintain coordinated flight during the maneuver.
PA.VII.C.R9	9. Secondary stalls.
PA.VII.C.R10	10. Inadvertent stall or spin.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.VII.C.S1	1. 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.S2	2. Establish the takeoff, departure, or cruise configuration as specified by the evaluator.
PA.VII.C.S3	3. Set power (as assigned by the evaluator) to no less than 65 percent available power.
PA.VII.C.S4	4. Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall.
PA.VII.C.S5	5. Maintain a specified heading, $\pm 10^\circ$ , if in straight flight, and maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 10^\circ$ , if in turning flight, while inducing the stall or as recommended by the aircraft manufacturer to a safe maneuvering altitude.
PA.VII.C.S6	6. Recognize and recover promptly after a fully developed stall occurs.
PA.VII.C.S7	7. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.
PA.VII.C.S8	8. Execute a stall recovery in accordance with procedures set forth in the AFM/POH.
PA.VII.C.S9	9. Accelerate to $V_X$ or $V_Y$ speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.



## VII. Slow Flight and Stalls

<b>Task</b>	<b>Task D. Spin Awareness</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VII.D.K1</i>	1. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes.
<i>PA.VII.D.K2</i>	2. The circumstances that can lead to an inadvertent stall or spin.
<i>PA.VII.D.K3</i>	3. Spin recovery procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VII.D.R1</i>	1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.)
<i>PA.VII.D.R2</i>	2. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).
<i>PA.VII.D.R3</i>	3. The environmental element effects on aircraft performance.
<i>PA.VII.D.R4</i>	4. The required actions for aircraft maximum performance and the consequences of failing to do so.
<i>PA.VII.D.R5</i>	5. Uncoordinated flight.
<i>PA.VII.D.R6</i>	6. Hazards associated with the improper application of flight control inputs during the spin recovery.
<i>PA.VII.D.R7</i>	7. Collision avoidance, scanning, obstacle and wire strike avoidance.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VII.D.S1</i>	1. Assess and avoid situations where unintentional spins may occur.
<i>PA.VII.D.S2</i>	2. Explain procedures for recovery from unintentional spins.

## VIII. Basic Instrument Maneuvers

**Note:** If the applicant holds an instrument-airplane rating, he or she only needs to demonstrate Task PA.VIII.E. Applies only to AMEL, AMES.

<b>Task</b>	<b>Task A. Straight-and-Level Flight</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during straight-and-level flight.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.A.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.A.K2</i>	2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes.
<i>PA.VIII.A.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.A.K4</i>	4. Aerodynamic factors related to maintaining straight-and-level flight.
<i>PA.VIII.A.K5</i>	5. Vestibular illusions (leans) and spatial disorientation.
<i>PA.VIII.A.K6</i>	6. Appropriate pitch, bank, and power settings for the airplane being flown.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.A.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.A.R2</i>	2. Poor cockpit management.
<i>PA.VIII.A.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.A.R4</i>	4. Continued flight into IMC or conditions outside of personal minimums.
<i>PA.VIII.A.R5</i>	5. Loss of situational awareness during low visibility or instrument conditions.
<i>PA.VIII.A.R6</i>	6. The hazards of abrupt control movements when flying by sole reference to instruments.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.A.S1</i>	1. Control the aircraft solely by reference to instruments in straight-and-level flight.
<i>PA.VIII.A.S2</i>	2. Perform an instrument scan and instrument cross-check.
<i>PA.VIII.A.S3</i>	3. Perform coordinated, smooth control application to correct for altitude, heading, airspeed, and bank deviations during straight-and-level flight.
<i>PA.VIII.A.S4</i>	4. Maintain altitude $\pm 200$ feet, heading $\pm 20^\circ$ and airspeed $\pm 10$ knots.

## VIII. Basic Instrument Maneuvers

<b>Task</b>	<b>Task B. Constant Airspeed Climbs</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during constant airspeed climbs.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.B.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.B.K2</i>	2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes.
<i>PA.VIII.B.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.B.K4</i>	4. Vestibular illusions (leans) and spatial disorientation.
<i>PA.VIII.B.K5</i>	5. Aerodynamic factors related to establishing and maintaining a constant airspeed climb, making turns while climbing, and then returning to level flight.
<i>PA.VIII.B.K6</i>	6. Appropriate pitch, bank, and power settings for the airplane being flown.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.B.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.B.R2</i>	2. Poor cockpit management.
<i>PA.VIII.B.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.B.R4</i>	4. Failure to descend straight ahead or make level turns under emergency instrument conditions.
<i>PA.VIII.B.R5</i>	5. Continued flight into IMC or conditions outside of personal minimums.
<i>PA.VIII.B.R6</i>	6. Loss of situational awareness during low visibility or instrument conditions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.B.S1</i>	1. Control the aircraft solely by reference to instruments.
<i>PA.VIII.B.S2</i>	2. Perform an instrument scan and instrument cross-check.
<i>PA.VIII.B.S3</i>	3. 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.
<i>PA.VIII.B.S4</i>	4. Demonstrate climbs solely by reference to instruments at a constant airspeed to specific altitudes in straight flight and turns.
<i>PA.VIII.B.S5</i>	5. Perform coordinated, smooth control application to correct for airspeed, heading and bank deviations during climb and then for level off.
<i>PA.VIII.B.S6</i>	6. Perform appropriate trimming to relieve control pressures.
<i>PA.VIII.B.S7</i>	7. Level off at the assigned altitude and maintain altitude $\pm 200$ feet, heading $\pm 20^\circ$ and airspeed $\pm 10$ knots.

## VIII. Basic Instrument Maneuvers

<b>Task</b>	<b>Task C. Constant Airspeed Descents</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during constant airspeed descents.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.C.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.C.K2</i>	2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes.
<i>PA.VIII.C.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.C.K4</i>	4. Vestibular illusions (leans) and spatial disorientation.
<i>PA.VIII.C.K5</i>	5. Aerodynamic factors related to establishing and maintaining a constant airspeed descent, making turns while descending, and then returning to level flight.
<i>PA.VIII.C.K6</i>	6. Appropriate pitch, power and bank settings for the airplane being flown.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.C.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.C.R2</i>	2. Poor cockpit management.
<i>PA.VIII.C.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.C.R4</i>	4. Failure to descend straight ahead or make level turns under emergency instrument conditions.
<i>PA.VIII.C.R5</i>	5. Continued flight into IMC or conditions outside of personal minimums.
<i>PA.VIII.C.R6</i>	6. Loss of situational awareness during low visibility or instrument conditions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.C.S1</i>	1. Control the aircraft solely by reference to instruments.
<i>PA.VIII.C.S2</i>	2. Perform an instrument scan and instrument cross-check.
<i>PA.VIII.C.S3</i>	3. Establish the descent configuration specified by the evaluator.
<i>PA.VIII.C.S4</i>	4. 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.
<i>PA.VIII.C.S5</i>	5. Demonstrate descents solely by reference to instruments at a constant airspeed to specific altitudes in straight flight and turns.
<i>PA.VIII.C.S6</i>	6. Perform appropriate trimming to relieve control pressures.
<i>PA.VIII.C.S7</i>	7. Level off at the assigned altitude and maintain altitude $\pm 200$ feet, heading $\pm 20^\circ$ and airspeed $\pm 10$ knots.

## VIII. Basic Instrument Maneuvers

<b>Task</b>	<b><i>Task D. Turns to Headings</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying during turns to headings.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.D.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.D.K2</i>	2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes.
<i>PA.VIII.D.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.D.K4</i>	4. Vestibular illusions (leans) and spatial disorientation.
<i>PA.VIII.D.K5</i>	5. Aerodynamic factors related to establishing turns while maintaining level flight.
<i>PA.VIII.D.K6</i>	6. Appropriate pitch, power and bank settings for the airplane being flown.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.D.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.D.R2</i>	2. Poor cockpit management.
<i>PA.VIII.D.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.D.R4</i>	4. Failure to descend straight ahead or make level turns under emergency instrument conditions.
<i>PA.VIII.D.R5</i>	5. Continued flight into IMC or conditions outside of personal minimums.
<i>PA.VIII.D.R6</i>	6. Loss of situational awareness during low visibility or instrument conditions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.D.S1</i>	1. Control the aircraft solely by reference to instruments.
<i>PA.VIII.D.S2</i>	2. Perform an instrument scan and instrument cross-check.
<i>PA.VIII.D.S3</i>	3. Perform coordinated, smooth flight control application to establish a standard rate turn, to correct for altitude and bank deviations, and to rollout on a specified heading.
<i>PA.VIII.D.S4</i>	4. Perform appropriate trimming to relieve control pressures.
<i>PA.VIII.D.S5</i>	5. Demonstrate turns to headings solely by reference to instruments, maintain altitude $\pm 200$ feet and maintain a standard rate turn and rolls out on the assigned heading $\pm 10^\circ$ ; maintain airspeed $\pm 10$ knots.

## VIII. Basic Instrument Maneuvers

<b>Task</b>	<b>Task E. Recovery from Unusual Flight Attitudes</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying while recovering from unusual attitudes.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.E.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.E.K2</i>	2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes.
<i>PA.VIII.E.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.E.K4</i>	4. Vestibular illusions (leans) and spatial disorientation.
<i>PA.VIII.E.K5</i>	5. Aerodynamic factors related to unusual pitch and bank attitudes and returning to level flight.
<i>PA.VIII.E.K6</i>	6. The appropriate pitch, power and bank settings for the airplane being flown.
<i>PA.VIII.E.K7</i>	7. The hazards of inappropriate control response.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.E.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.E.R2</i>	2. Poor cockpit management.
<i>PA.VIII.E.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.E.R4</i>	4. Failure to descend straight ahead or make level turns under emergency instrument conditions.
<i>PA.VIII.E.R5</i>	5. Operating outside of the normal operating envelope during the recovery.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.E.S1</i>	1. Perform timely recognition of the nature of the unusual attitude.
<i>PA.VIII.E.S2</i>	2. Recognize unusual flight attitudes solely by reference to instruments and 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.
<i>PA.VIII.E.S3</i>	3. Perform appropriate trimming to relieve control pressures.
<i>PA.VIII.E.S4</i>	4. When level, maintain altitude $\pm 200$ feet, heading $\pm 20^\circ$ and airspeed $\pm 10$ knots.

## VIII. Basic Instrument Maneuvers

<b>Task</b>	<b><i>Task F. Radio Communications, Navigation Systems/Facilities, and Radar Services</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-15, FAA-H-8083-25
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.VIII.F.K1</i>	1. Flight instrument function and operation.
<i>PA.VIII.F.K2</i>	2. Flight instrument sensitivity, limitations and potential errors in unusual attitudes.
<i>PA.VIII.F.K3</i>	3. Flight instrument correlation (pitch instruments/bank instruments).
<i>PA.VIII.F.K4</i>	4. How to determine the minimum safe altitude for the location.
<i>PA.VIII.F.K5</i>	5. Radio communications equipment and procedures.
<i>PA.VIII.F.K6</i>	6. Air traffic control facilities and services.
<i>PA.VIII.F.K7</i>	7. Installed navigation equipment function and displays.
<i>PA.VIII.F.K8</i>	8. Pilot interface including: pilot monitoring duties and interaction with charts and avionics equipment.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.VIII.F.R1</i>	1. Lack of proficiency in flight by reference to instruments.
<i>PA.VIII.F.R2</i>	2. Poor cockpit management.
<i>PA.VIII.F.R3</i>	3. Lack of awareness of the direction for the nearest VMC.
<i>PA.VIII.F.R4</i>	4. Failure to descend straight ahead or make level turns under emergency instrument conditions.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.VIII.F.S1</i>	1. Maintain controlled flight while selecting proper communications frequencies, identifying the appropriate facility, and setting up navigation equipment to select the desired course.
<i>PA.VIII.F.S2</i>	2. Maintain aircraft control while complying with ATC instructions.
<i>PA.VIII.F.S3</i>	3. Maintain aircraft control while navigating using radio aids.
<i>PA.VIII.F.S4</i>	4. Maintain altitude $\pm 200$ feet, heading $\pm 20^\circ$ and airspeed $\pm 10$ knots.

## IX. Emergency Operations

<b>Task</b>	<b>Task A. Emergency Descent</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an emergency descent. <b>Note:</b> ( <a href="#">See Appendix 6 – Safety of Flight Multiengine Considerations,</a> )
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IX.A.K1	1. Glide speed, distance.
PA.IX.A.K2	2. Stabilized approach.
PA.IX.A.K3	3. Energy management.
PA.IX.A.K4	4. Wind conditions and effects.
PA.IX.A.K5	5. Situations, such as depressurization, cockpit smoke and/or engine fire that require an emergency descent.
PA.IX.A.K6	6. Emergency procedures.
PA.IX.A.K7	7. Communications.
PA.IX.A.K8	8. ATC clearance deviations.
PA.IX.A.K9	9. ELTs and/or other emergency locating devices.
PA.IX.A.K10	10. Radar assistance to VFR aircraft.
PA.IX.A.K11	11. Transponder.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IX.A.R1	1. Wind.
PA.IX.A.R2	2. Failure to select a suitable landing area.
PA.IX.A.R3	3. Failure to plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions.
PA.IX.A.R4	4. Improper aircraft and propeller configurations.
PA.IX.A.R5	5. Improper management of tasks associated with an emergency descent.
PA.IX.A.R6	6. Low altitude maneuvering.
PA.IX.A.R7	7. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IX.A.R8	8. Having the right-of-way in an emergency.
PA.IX.A.R9	9. Failure to maintain situational awareness during an emergency descent.
PA.IX.A.R10	10. Low altitude stalls/spins.
PA.IX.A.R11	11. Difference between using $V_{NE}$ and $V_{FE}$ , and when each one is appropriate.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IX.A.S1	1. Analyze the situation and select an appropriate course of action.
PA.IX.A.S2	2. Establish and maintain the appropriate airspeed and configuration for the emergency descent.
PA.IX.A.S3	3. Establish appropriate propeller pitch (if constant speed), flap deployment, and gear position (if retractable) relative to the distance and altitude to the selected landing area.
PA.IX.A.S4	4. Exhibit orientation, division of attention and proper planning.
PA.IX.A.S5	5. Maintain positive load factors during the descent.
PA.IX.A.S6	6. Complete the appropriate checklist.



## IX. Emergency Operations

<b>Task</b>	<b><i>Task B. Emergency Approach and Landing (Simulated) (ASEL, ASES)</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency approach and landing procedures.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IX.B.K1</i>	1. Glide speed and distance.
<i>PA.IX.B.K2</i>	2. Landing distance.
<i>PA.IX.B.K3</i>	3. Hazards of other than hard surfaced runway.
<i>PA.IX.B.K4</i>	4. Stabilized approach.
<i>PA.IX.B.K5</i>	5. Energy management.
<i>PA.IX.B.K6</i>	6. Wind conditions and effects.
<i>PA.IX.B.K7</i>	7. Density altitude.
<i>PA.IX.B.K8</i>	8. Emergency procedures.
<i>PA.IX.B.K9</i>	9. Communications.
<i>PA.IX.B.K10</i>	10. ATC clearance deviations.
<i>PA.IX.B.K11</i>	11. Minimum fuel.
<i>PA.IX.B.K12</i>	12. Selecting a landing location.
<i>PA.IX.B.K13</i>	13. ELTs and/or other emergency locating devices.
<i>PA.IX.B.K14</i>	14. Radar assistance to VFR aircraft.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IX.B.R1</i>	1. Wind.
<i>PA.IX.B.R2</i>	2. Failure to select a suitable landing area.
<i>PA.IX.B.R3</i>	3. Failure to plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions.
<i>PA.IX.B.R4</i>	4. Improper management of tasks associated with an emergency approach and landing.
<i>PA.IX.B.R5</i>	5. Low altitude maneuvering.
<i>PA.IX.B.R6</i>	6. Startle response.
<i>PA.IX.B.R7</i>	7. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IX.B.R8</i>	8. Having the right-of-way in an emergency.
<i>PA.IX.B.R9</i>	9. Obstacles on approach and landing
<i>PA.IX.B.R10</i>	10. Low altitude stall/spin.
<i>PA.IX.B.R11</i>	11. Failure to maintain the appropriate airspeed (e.g., best glide speed, minimum sink speed) or configuration during the descent.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IX.B.S1</i>	1. Analyze the situation, select an appropriate course of action, and select a suitable landing area.
<i>PA.IX.B.S2</i>	2. Establish and maintain the recommended best glide airspeed, $\pm 10$ knots.
<i>PA.IX.B.S3</i>	3. Plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions that would allow a safe landing.
<i>PA.IX.B.S4</i>	4. Prepare for landing, or go-around, as specified by the evaluator.
<i>PA.IX.B.S5</i>	5. Complete the appropriate checklist.
<i>PA.IX.B.S6</i>	6. Make appropriate radio calls, when conditions allow.

## IX. Emergency Operations

<b>Task</b>	<b><i>Task C. Systems and Equipment Malfunction</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IX.C.K1</i>	1. The elements related to system and equipment malfunctions appropriate to the airplane, including:
<i>PA.IX.C.K1a</i>	a. Partial or complete power loss
<i>PA.IX.C.K1b</i>	b. Engine roughness or overheat
<i>PA.IX.C.K1c</i>	c. Carburetor or induction icing
<i>PA.IX.C.K1d</i>	d. Loss of oil pressure
<i>PA.IX.C.K1e</i>	e. Fuel starvation
<i>PA.IX.C.K1f</i>	f. Electrical malfunction
<i>PA.IX.C.K1g</i>	g. Vacuum/pressure, and associated flight instruments malfunction
<i>PA.IX.C.K1h</i>	h. Pitot/static system malfunction
<i>PA.IX.C.K1i</i>	i. Landing gear or flap malfunction
<i>PA.IX.C.K1j</i>	j. Inoperative trim
<i>PA.IX.C.K1k</i>	k. Inadvertent door or window opening
<i>PA.IX.C.K1l</i>	l. Structural icing
<i>PA.IX.C.K1m</i>	m. Smoke/fire/engine compartment fire
<i>PA.IX.C.K1n</i>	n. Any other emergency appropriate to the airplane
<i>PA.IX.C.K1o</i>	o. Glass cockpit operations
<i>PA.IX.C.K2</i>	2. Supplemental oxygen.
<i>PA.IX.C.K3</i>	3. Load factors.
<i>PA.IX.C.K4</i>	4. High drag versus low drag.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IX.C.R1</i>	1. Hazardous attitudes.
<i>PA.IX.C.R2</i>	2. Failure to complete a preflight inspection.
<i>PA.IX.C.R3</i>	3. Improper maintenance.
<i>PA.IX.C.R4</i>	4. Failure to use the proper checklist during a system or equipment malfunction.
<i>PA.IX.C.R5</i>	5. Failure to recognize situations, such as:
<i>PA.IX.C.R5a</i>	a. Depressurization
<i>PA.IX.C.R5b</i>	b. Cockpit smoke
<i>PA.IX.C.R5c</i>	c. Fire
<i>PA.IX.C.R6</i>	6. Loss of orientation, failure to divide attention, and improper planning.
<i>PA.IX.C.R7</i>	7. Failure to properly manage the airplane's energy during a system or equipment malfunction.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IX.C.S1</i>	1. Analyze the situation and take appropriate action for simulated emergencies, with reference to at least three of the systems listed in the Knowledge section above.
<i>PA.IX.C.S2</i>	2. Complete the appropriate checklist or procedure.

## IX. Emergency Operations

<b>Task</b>	<b><i>Task D. Emergency Equipment and Survival Gear</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	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.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IX.D.K1</i>	1. Emergency equipment.
<i>PA.IX.D.K2</i>	2. Climate extremes (hot/cold).
<i>PA.IX.D.K3</i>	3. The hazards of mountainous terrain.
<i>PA.IX.D.K4</i>	4. The hazards of overwater operations.
<i>PA.IX.D.K5</i>	5. Gear to meet basic physical needs until rescue.
<i>PA.IX.D.K6</i>	6. ELT operation, limitations and testing requirements.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IX.D.R1</i>	1. Being unprepared to meet basic needs (water, clothing, shelter) for 48 to 72 hours in the event of an unplanned off airport landing.
<i>PA.IX.D.R2</i>	2. Not knowing survival techniques, to include being located by search and rescue, in the event of an unplanned off airport landing.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IX.D.S1</i>	1. Identify appropriate equipment that should be onboard the airplane.
<i>PA.IX.D.S2</i>	2. Identify appropriate personal gear to meet physical needs until rescue.
<i>PA.IX.D.S3</i>	3. Brief the proper use of the fire extinguisher and other survival equipment.

## IX. Emergency Operations

<b>Task</b>	<b>Task E. Engine Failure During Takeoff Before <math>V_{MC}</math> (Simulated) (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an engine failure during takeoff before $V_{MC}$ . <b>Note:</b> ( <a href="#">See Appendix 6 – Safety of Flight.</a> )
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IX.E.K1</i>	1. $V_{MC}$ .
<i>PA.IX.E.K2</i>	2. Runway distances.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IX.E.R1</i>	1. Failure to plan and communicate during an emergency.
<i>PA.IX.E.R2</i>	2. Failure to manage Tasks during an engine failure.
<i>PA.IX.E.R3</i>	3. Low altitude maneuvering.
<i>PA.IX.E.R4</i>	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IX.E.R5</i>	5. Right-of-way rules during an emergency.
<i>PA.IX.E.R6</i>	6. Obstacles on the departure path.
<i>PA.IX.E.R7</i>	7. Improper response to an engine failure on takeoff.
<i>PA.IX.E.R9</i>	8. Failure to maintain directional control during an engine failure on takeoff.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IX.E.S1</i>	1. Close the throttles smoothly and promptly when a simulated engine failure occurs.
<i>PA.IX.E.S2</i>	2. Maintain directional control and apply brakes, as necessary.

## IX. Emergency Operations

<b>Task</b>	<b>Task F. Engine Failure After Lift-Off (Simulated) (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an engine failure after lift-off. <b>Note:</b> ( <a href="#">See Appendix 6 – Safety of Flight.</a> )
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.IX.F.K1	1. $V_{MC}$ .
PA.IX.F.K2	2. Runway distances.
PA.IX.F.K3	3. Drag reduction.
PA.IX.F.K4	4. How to identify the inoperative engine.
PA.IX.F.K5	5. Aircraft configuration for best performance during single-engine operations.
PA.IX.F.K6	6. Feathering and zero thrust procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.IX.F.R1	1. Failure to plan and communicate during an emergency.
PA.IX.F.R2	2. Failure to manage Tasks during an engine failure.
PA.IX.F.R3	3. Low altitude maneuvering.
PA.IX.F.R4	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.IX.F.R5	5. Right-of-way rules during an emergency.
PA.IX.F.R6	6. Obstacles on the departure path.
PA.IX.F.R7	7. Low altitude stall/spins.
PA.IX.F.R8	8. Improper response to an engine failure after takeoff.
PA.IX.F.R9	9. Failure to maintain directional control during an engine failure after takeoff.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.IX.F.S1	1. Recognize a simulated engine failure promptly, maintain control and utilize appropriate emergency procedures.
PA.IX.F.S2	2. Reduce drag, identify and verify the inoperative engine after a simulated engine failure.
PA.IX.F.S3	3. Simulate feathering the propeller on the inoperative engine. Evaluator will then establish a zero thrust condition on the inoperative engine.
PA.IX.F.S4	4. Establish $V_{YSE}$ ; if obstructions are present, establish $V_{XSE}$ or $V_{MC} + 5$ knots, whichever is greater, until obstructions are cleared, then transition to $V_{YSE}$ .
PA.IX.F.S5	5. Bank toward the operating engine as required for best performance.
PA.IX.F.S6	6. Monitor operating engine and make adjustments as necessary.
PA.IX.F.S7	7. Recognize the airplane's performance capabilities. If a climb is not possible at $V_{YSE}$ , maintain $V_{YSE}$ and return to the departure airport for landing, or initiate an approach to the most suitable landing area available.
PA.IX.F.S8	8. Simulate securing the inoperative engine.
PA.IX.F.S9	9. Maintain heading $\pm 10^\circ$ , and airspeed $\pm 5$ knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.
PA.IX.F.S10	10. Complete the appropriate emergency checklist.

## IX. Emergency Operations

<b>Task</b>	<b>Task G. Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an approach and landing with an engine inoperative, including engine failure on final approach.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.IX.G.K1</i>	1. $V_{MC}$ .
<i>PA.IX.G.K2</i>	2. Runway distances.
<i>PA.IX.G.K3</i>	3. Drag reduction.
<i>PA.IX.G.K4</i>	4. How to identify the inoperative engine.
<i>PA.IX.G.K5</i>	5. Aircraft configuration for best performance during single-engine operations.
<i>PA.IX.G.K6</i>	6. Feathering and zero thrust procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.IX.G.R1</i>	1. Wind.
<i>PA.IX.G.R2</i>	2. Failure to select a suitable landing area.
<i>PA.IX.G.R3</i>	3. Failure to plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions.
<i>PA.IX.G.R4</i>	4. Failure to manage Tasks with an engine failure.
<i>PA.IX.G.R5</i>	5. Low-altitude maneuvering.
<i>PA.IX.G.R6</i>	6. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.IX.G.R7</i>	7. Right-of-way during an emergency.
<i>PA.IX.G.R8</i>	8. Obstacles on approach and landing paths.
<i>PA.IX.G.R9</i>	9. Stalls and spins.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.IX.G.S1</i>	1. Recognize an engine failure and take appropriate action, maintain control, and utilize the manufacturer's recommended emergency procedures.
<i>PA.IX.G.S2</i>	2. Bank toward the operating engine, as required, for best performance.
<i>PA.IX.G.S3</i>	3. Monitor the operating engine and make adjustments as necessary.
<i>PA.IX.G.S4</i>	4. Maintain the manufacturer's recommended approach airspeed +10/-5 knots, in the landing configuration with a stabilized approach, until landing is assured.
<i>PA.IX.G.S5</i>	5. Make smooth, timely, and correct control applications, during round out and touchdown.
<i>PA.IX.G.S6</i>	6. Touch down on the first one-third of available runway, with no drift and the airplane's longitudinal axis aligned with and over the runway center path.
<i>PA.IX.G.S7</i>	7. Maintain crosswind correction and directional control throughout the approach and landing sequence.
<i>PA.IX.G.S8</i>	8. Complete the appropriate checklists.

## X. Multiengine Operations

**Note:** If the applicant does not hold an instrument-airplane rating airplane, Tasks C and D do not need to be accomplished. All other Tasks must be completed.

<b>Task</b>	<b>Task A. Maneuvering with One Engine Inoperative (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering with one engine inoperative.  <b>Note:</b> ( <a href="#">See Appendix 6</a> – Safety of Flight Multiengine Considerations; <a href="#">See Appendix 7</a> – Aircraft Requirements and Limitations.)
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.X.A.K1	1. $V_{MC}$ .
PA.X.A.K2	2. Drag reduction.
PA.X.A.K3	3. How to identify the inoperative engine.
PA.X.A.K4	4. Aircraft configuration for best performance during single-engine operations.
PA.X.A.K5	5. Feathering and zero thrust procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.X.A.R1	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.X.A.R2	2. Improper planning to avoid terrain.
PA.X.A.R3	3. Failure to manage Tasks with an inoperative engine.
PA.X.A.R4	4. Failure to maintain situational awareness.
PA.X.A.R5	5. An improper restart of the inoperative engine.
PA.X.A.R6	6. The inability to climb or maintain altitude with one engine inoperative.
PA.X.A.R7	7. Failure to maintain coordinated flight.
PA.X.A.R8	8. Low altitude stalls/spins.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.X.A.S1	1. Recognize an engine failure and maintain control.
PA.X.A.S2	2. Set the engine controls, reduce drag, identify and verify the inoperative engine, and feather the appropriate propeller.
PA.X.A.S3	3. Establish and maintain a bank toward the operating engine as required for best performance in straight and level flight.
PA.X.A.S4	4. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine.
PA.X.A.S5	5. Monitor the operating engine and make the necessary adjustments.
PA.X.A.S6	6. Demonstrate coordinated flight with one engine inoperative (propeller feathered).
PA.X.A.S7	7. Restart the inoperative engine using the appropriate manufacturer's restart procedures.
PA.X.A.S8	8. Maintain altitude $\pm 100$ feet or a minimum sink rate as appropriate and a heading $\pm 10^\circ$ .
PA.X.A.S9	9. Complete the appropriate checklist.

## X. Multiengine Operations

<b>Task</b>	<b>Task B. <math>V_{MC}</math> Demonstration (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a $V_{MC}$ demonstration. <b>Note:</b> ( <a href="#">See Appendix 6</a> – Safety of Flight Multiengine Considerations; <a href="#">See Appendix 7</a> – Aircraft Requirements and Limitations.)
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.X.B.K1	1. $V_{MC}$ Factors affecting $V_{MC}$ and how $V_{MC}$ differs from $V_S$ .
PA.X.B.K2	2. The cause of loss of directional control at airspeeds less than $V_{MC}$ .
PA.X.B.K3	3. Safe recovery procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.X.B.R1	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.X.B.R2	2. Improper planning to avoid terrain.
PA.X.B.R3	3. Failure to manage Tasks with an inoperative engine.
PA.X.B.R4	4. An improper restart of the inoperative engine.
PA.X.B.R5	5. Failure to maintain situational awareness.
PA.X.B.R6	6. Inability to configure or recover properly from the demonstration.
PA.X.B.R7	7. Low altitude stalls/spins.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.X.B.S1	1. Configure the airplane in accordance with the manufacturer's recommendations, in the absence of the manufacturer's recommendations, then at $V_{SSE}/V_{YSE}$ , as appropriate:
PA.X.B.S1a	a. Landing gear retracted
PA.X.B.S1b	b. Flaps set for takeoff
PA.X.B.S1c	c. Cowl flaps set for takeoff
PA.X.B.S1d	d. Trim set for takeoff
PA.X.B.S1e	e. Propellers set for high RPM
PA.X.B.S1f	f. Power on critical engine reduce to idle
PA.X.B.S1g	g. Power on operating engine set to takeoff or maximum available power
PA.X.B.S2	2. Establish a single-engine climb attitude with the airspeed at approximately 10 knots above $V_{SSE}$ .
PA.X.B.S3	3. Establish a bank toward the operating engine, as required for best performance and controllability.
PA.X.B.S4	4. Increase the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying rudder pressure to maintain directional control until full rudder is applied.
PA.X.B.S5	5. Recognize indications of loss of directional control, stall warning, or buffet.
PA.X.B.S6	6. Recover promptly by simultaneously reducing power sufficiently on the operating engine while decreasing the angle of attack as necessary to regain airspeed and directional control. Recovery <b>should not</b> be attempted by increasing the power on the simulated failed engine.
PA.X.B.S7	7. Recover within 20° of the entry heading.
PA.X.B.S8	8. Advance power smoothly on the operating engine and accelerate to $V_{SSE}/V_{YSE}$ , as appropriate, +10/-5 knots, during the recovery.



## X. Multiengine Operations

<b>Task</b>	<b>Task C. Engine Failure During Flight (by reference to instruments) (AMEL, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with instrument flight with one engine inoperative.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.X.C.K1</i>	1. Instrument procedures used with one engine inoperative.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.X.C.R1</i>	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.X.C.R2</i>	2. Improper planning to avoid terrain.
<i>PA.X.C.R3</i>	3. Failure to manage Tasks with an inoperative engine.
<i>PA.X.C.R4</i>	4. Failure to maintain situational awareness.
<i>PA.X.C.R5</i>	5. Failure to recognize an engine failure.
<i>PA.X.C.R6</i>	6. Failure to identify the correct failed engine.
<i>PA.X.C.R7</i>	7. Stalls and spins.
<i>PA.X.C.R8</i>	8. Inability to climb or maintain altitude with an inoperative engine.
<i>PA.X.C.R9</i>	9. Physiological factors when flying by reference to instruments with an inoperative engine.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.X.C.S1</i>	1. Recognize an engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather the appropriate engine propeller.
<i>PA.X.C.S2</i>	2. Establish and maintain a bank toward the operating engine as required for best performance in straight-and-level flight.
<i>PA.X.C.S3</i>	3. Follow the prescribed checklists to verify procedures for securing the inoperative engine.
<i>PA.X.C.S4</i>	4. Monitor the operating engine and make the necessary adjustments.
<i>PA.X.C.S5</i>	5. Demonstrate coordinated flight with one engine inoperative.
<i>PA.X.C.S6</i>	6. Maintain altitude $\pm 100$ feet, or a minimum sink rate, as appropriate, a heading $\pm 10^\circ$ , a bank $\pm 5^\circ$ , and level off from climbs and descents within $\pm 100$ feet.

## X. Multiengine Operations

<b>Task</b>	<b><i>Task D. Instrument Approach and Landing with an Inoperative Engine (Simulated) (by reference to instruments) (AMEL, AMES)</i></b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-P-8740-19; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with executing a published instrument approach with one engine inoperative.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.X.D.K1</i>	1. Instrument approach procedures used with one engine inoperative.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.X.D.R1</i>	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
<i>PA.X.D.R2</i>	2. Improper planning to avoid terrain.
<i>PA.X.D.R3</i>	3. Failure to manage Tasks with an inoperative engine.
<i>PA.X.D.R4</i>	4. Failure to maintain situational awareness.
<i>PA.X.D.R5</i>	5. Failure to recognize an engine failure.
<i>PA.X.D.R6</i>	6. Failure to identify the correct failed engine.
<i>PA.X.D.R7</i>	7. Stalls and spins.
<i>PA.X.D.R8</i>	8. Inability to maintain a stabilized approach with an inoperative engine.
<i>PA.X.D.R9</i>	9. Physiological factors when flying by reference to instruments with an inoperative engine.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.X.D.S1</i>	1. Recognize an engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather the appropriate engine propeller.
<i>PA.X.D.S2</i>	2. Establish and maintain a bank toward the operating engine, as required for best performance in straight-and-level flight.
<i>PA.X.D.S3</i>	3. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine.
<i>PA.X.D.S4</i>	4. Monitor the operating engine and make the necessary adjustments.
<i>PA.X.D.S5</i>	5. Request and receive an actual or a simulated ATC clearance for an instrument approach.
<i>PA.X.D.S6</i>	6. Follow the actual or simulated ATC clearance for an instrument approach.
<i>PA.X.D.S7</i>	7. Maintain altitude within 100 feet, the airspeed within $\pm 10$ knots if within the aircraft's capability, and a heading $\pm 10^\circ$ .
<i>PA.X.D.S8</i>	8. Establish a rate of descent that will ensure arrival at the MDA or DH/DA, with the airplane in a position from which a descent to a landing on the intended runway can be made, either straight in or circling as appropriate.
<i>PA.X.D.S9</i>	9. While on the final approach segment, maintain no more than three-quarter-scale deflection of the CDI/glide slope indicator.
<i>PA.X.D.S10</i>	10. Avoid loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft.
<i>PA.X.D.S11</i>	11. Comply with the published criteria for the aircraft approach category when circling.
<i>PA.X.D.S12</i>	12. Complete the landing and the appropriate manufacturer's checklists.

## XI. Night Operations

<b>Task</b>	<b>Task A. Night Preparation</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; AIM; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with night operations.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.XI.A.K1	1. Physiological aspects of night flying as it relates to vision.
PA.XI.A.K2	2. Lighting systems identifying airports, runways, taxiways and obstructions, as well as pilot controlled lighting.
PA.XI.A.K3	3. Airplane equipment requirements for night operations.
PA.XI.A.K4	4. Airplane lighting systems: type, interpretation in flight, when to use each lighting system.
PA.XI.A.K5	5. Personal equipment essential for night flight.
PA.XI.A.K6	6. Night orientation, navigation, and chart reading techniques.
PA.XI.A.K7	7. Safety precautions and emergencies unique to night flying.
PA.XI.A.K8	8. Somatogravic illusion and black hole approach illusion.
PA.XI.A.K9	9. Disorientation that can be experienced in unusual attitudes at night.
PA.XI.A.K10	10. Visual scanning techniques during night operations.
PA.XI.A.K11	11. Hazards of inadvertent IMC.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.XI.A.R1	1. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.XI.A.R2	2. Improper planning to avoid terrain
PA.XI.A.R3	3. Failure to manage Tasks during night operations.
PA.XI.A.R4	4. Failure to maintain situational awareness
PA.XI.A.R5	5. Environmental considerations at night (e.g., IMC; terrain (roads)).
PA.XI.A.R6	6. Failure to maintain VFR.
PA.XI.A.R7	7. Physiological aspects of night flying.
<b>Skills</b>	<b>N/A</b>  <b>Note:</b> <i>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.</i>

## XII. Postflight Procedures

<b>Task</b>	<b>Task A. After Landing, Parking and Securing (ASEL, AMEL)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with after landing, parking, and securing procedures.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.XII.A.K1</i>	1. Positioning aircraft controls for wind.
<i>PA.XII.A.K2</i>	2. Familiarity with airport markings (including hold short lines), signs, and lights.
<i>PA.XII.A.K3</i>	3. Aircraft lighting.
<i>PA.XII.A.K4</i>	4. Towered and non-towered airport operations.
<i>PA.XII.A.K5</i>	5. Visual indicators for wind.
<i>PA.XII.A.K6</i>	6. Airport information resources (Chart Supplements U.S., airport diagrams, and appropriate publications).
<i>PA.XII.A.K7</i>	7. Good cockpit discipline during taxi.
<i>PA.XII.A.K8</i>	8. Appropriate taxi speeds.
<i>PA.XII.A.K9</i>	9. Procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of Hot Spots, and communicating and coordinating with ATC.
<i>PA.XII.A.K10</i>	10. Procedures unique to night operations.
<i>PA.XII.A.K11</i>	11. Hazards of low visibility operations.
<i>PA.XII.A.K12</i>	12. The importance of documenting any in-flight/post-flight discrepancies.
<i>PA.XII.A.K13</i>	13. National Transportation Safety Board (NTSB) accident/incident reporting.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.XII.A.R1</i>	1. Distractions during aircraft taxi and parking.
<i>PA.XII.A.R2</i>	2. The proximity of other aircraft, vehicles, and people when operating on airport surfaces.
<i>PA.XII.A.R3</i>	3. Spinning propellers.
<i>PA.XII.A.R4</i>	4. Failure to manage Tasks during taxi and parking.
<i>PA.XII.A.R5</i>	5. Confirmation or expectation bias.
<i>PA.XII.A.R6</i>	6. Failure to manage the automation.
<i>PA.XII.A.R7</i>	7. Airport security.
<i>PA.XII.A.R8</i>	8. Failure to maintain directional control after landing or during taxi
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.XII.A.S1</i>	1. Maintain directional control after touchdown while decelerating to an appropriate speed.
<i>PA.XII.A.S2</i>	2. Utilize runway incursion avoidance procedures after landing.
<i>PA.XII.A.S3</i>	3. Park in an appropriate area, considering the safety of nearby persons and property.
<i>PA.XII.A.S4</i>	4. Plan the taxi route to the ramp.
<i>PA.XII.A.S5</i>	5. Follow the appropriate procedure for engine shutdown.
<i>PA.XII.A.S6</i>	6. Complete the after landing checklist after the airplane has stopped.
<i>PA.XII.A.S7</i>	7. Complete the engine shutdown checklist.
<i>PA.XII.A.S8</i>	8. Disembark passengers safely and remain aware of passenger movement while on the ramp area.
<i>PA.XII.A.S9</i>	9. Record aircraft discrepancies and notes for possible service needs before the next flight.
<i>PA.XII.A.S10</i>	10. Conduct an appropriate post flight inspection and secure the aircraft.

## XII. Postflight Procedures

<b>Task</b>	<b>Task B. Seaplane Post-Landing Procedures (ASES, AMES)</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-23; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with anchoring, docking, mooring, and ramping/beaching. <b>Note:</b> <i>The examiner shall select at least one after-landing procedure (anchoring, docking and mooring, or ramping/beaching).</i>
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.XII.B.K1</i>	1. Mooring.
<i>PA.XII.B.K2</i>	2. Docking.
<i>PA.XII.B.K3</i>	3. Anchoring.
<i>PA.XII.B.K4</i>	4. Ramping/beaching.
<i>PA.XII.B.K5</i>	5. Post-landing procedures.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.XII.B.R1</i>	1. Distractions during aircraft taxi and parking.
<i>PA.XII.B.R2</i>	2. Proximity of other aircraft, vehicles, and people when operating on airport or water surfaces.
<i>PA.XII.B.R3</i>	3. Spinning propellers.
<i>PA.XII.B.R4</i>	4. Failure to manage Tasks during taxi and parking.
<i>PA.XII.B.R5</i>	5. Confirmation or expectation bias.
<i>PA.XII.B.R6</i>	6. Failure to manage the automation
<i>PA.XII.B.R7</i>	7. Airport security.
<i>PA.XII.B.R8</i>	8. Water and environmental impacts on securing a seaplane.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.XII.B.S1</i>	1. Select a suitable area for anchoring, considering seaplane movement, water depth, tide, wind, and weather changes.
<i>PA.XII.B.S2</i>	2. Use an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security.
<i>PA.XII.B.S3</i>	3. Approach the dock or mooring buoy in the proper direction considering speed, hazards, wind, and water current.
<i>PA.XII.B.S4</i>	4. Approach the ramp/beach considering persons and property, in the proper attitude and direction, at a safe speed, considering water depth, tide, current, and wind.
<i>PA.XII.B.S5</i>	5. Ensure seaplane security in a manner that will protect it from the harmful effect of wind, waves, and changes in water level.

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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 Tables

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 <b>Canadian Conversion</b>	40	16	2.0	70
PCP	Private Pilot – Airplane <b>Canadian Conversion</b>	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
RPA	Recreational Pilot Airplane	50	15	2.0	70
RPG	Recreational Pilot Gyroplane	50	15	2.0	70
RPH	Recreational Pilot Helicopter	50	15	2.0	70

## Knowledge Test Blueprint

PAR Knowledge Areas Required by 14 CFR section 61.65 to be on the Knowledge Test	Percent of Questions Per Test
I. Regulations	5 – 15%
II. Accident Reporting	5 – 10%
III. Performance Charts	5 – 10%
IV. Radio Communications	5 – 10%
V. Weather	5 – 10%
VI. Safe and Efficient Operations	5 – 15%
VII. Density Altitude Performance	5 – 10%
VIII. Weight and Balance	5 – 10%
IX. Aerodynamics., Powerplants and Aircraft Systems	5 – 10%
X. Stalls and Spins	5 – 10%
XI. Aeronautical Decision Making (ADM)	5 – 10%
XII. Preflight actions	5 – 10%
<b>Total Number of Questions</b>	<b>60</b>

### English Language Proficiency

In accordance with the requirements of 14 CFR part 61 and the FAA Aviation English Language Proficiency standard, throughout the application and testing process the applicant must demonstrate the ability to read, write, speak, and understand the English language. English language proficiency is required to communicate effectively with 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. [\[back\]](#)

### 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:

- Section 61.35 lists the prerequisites for taking the knowledge test, to include the minimum age an applicant must be to sit for 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;
    - (iv) If the permanent mailing address is a post office box number, then the applicant must provide a government-issued residential address
- Section 61.49 acceptable forms of retest authorization for **all** Private Pilot tests:
  - An applicant retesting **after failure** is required to submit the applicable 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 test report presented as authorization and attach it to the applicable sign-in/out log.

**Note:** *If the applicant no longer possesses the original test report, he or she may request a duplicate replacement issued by [AFS-760](#).*

- Acceptable forms of authorization for PCP only:
  - Confirmation of Verification Letter issued by the Airman 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](http://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.

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## 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.) [\[back\]](#)

### **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 pre-written 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

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### **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 one year. [\[back\]](#)

### ***Testing Procedures for Applicants Requesting Special Accommodations***

An applicant with learning or reading disability may request approval from AFS-630 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 typed-in 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 Standards Branch (AFS-630) 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.

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### Appendix 3: Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report documenting the score with the testing center's raised, embossed seal. The applicant must retain the original Airman Knowledge Test Report. 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 Airman Knowledge Test Report to the evaluator, who is required to assess the noted areas of deficiency during the ground portion of the practical test.

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

To obtain a duplicate Airman Knowledge Test Report 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:

Federal Aviation Administration  
Airmen Certification Branch, AFS-760  
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 [Airman Certification Branch \(AFS-760\) web page](#).

#### ***FAA Knowledge Test Question Coding***

Each Task in the Airman Certification Standard includes an Airman Certification Standards (ACS) code. This ACS code will soon be displayed on the airman test report to indicate what Task element was proven deficient on the Knowledge Exam. Instructors can then provide remedial training in the deficient areas and evaluators can re-test this element during the practical exam.

The ACS coding consists of 4 elements. For example: this code is deciphered as follows:

PA.XI.A.K1:

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

Knowledge test questions are mapped to the ACS codes, which will soon replace the system of “Learning Statement Codes.” After this transition occurs, the airman knowledge test report 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. [\[back\]](#)

## **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 sections 61.39(a)(1) through (7) and 61.103, respectively.

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## 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.

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### ***Evaluator Responsibilities***

An Evaluator is:

- Aviation safety inspector (ASI)
- Pilot examiner (other than administrative pilot examiners) or
- Chief instructor, assistant chief instructor or check instructor of pilot school holding examining authority
- CFII conducting 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 each Task in the appropriate ACS. This responsibility also includes verifying the experience requirements specified for a certificate or rating.

At the initial stage of the practical test, the evaluator must also determine that the applicant meets FAA Aviation English Language Proficiency (AELP) standards 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 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. If, at any point during the practical test, the applicant does not meet the AELP standards, the evaluator must issue a Notice of Disapproval, FAA form 8060-5, with "NOT FAA AELP" in the comments. If there is any doubt, the evaluator should contact the local Flight Standards District Office (FSDO) for assistance.

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 from each applicable Task are as follows:

- At least one knowledge element;
- At least one risk management element;
- All skill elements unless otherwise noted; 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 may use questions during flight to test knowledge and risk management elements not evident in the demonstrated skills. To the greatest extent practicable, evaluators shall 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 sub-elements (such as PA.I.C.K4c Temperature), the evaluator may select either the primary element (such as K4) or an appropriate sub-element (such as K4c). If the broader primary element is selected, the evaluator must develop questions only from material covered in the references listed for the Task.

### ***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 may 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. [\[back\]](#)

### **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;
- Demonstrate competence in crew resource management in aircraft certificated for more than one required pilot crew member, 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**

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.

When the evaluator issues a Notice of Disapproval, he or she shall list the Area of Operation in which the applicant did not meet the standard. The Notice of Disapproval must also list the Area(s) of Operation not tested, and the number of practical test failures.

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, and the applicant is entitled to credit only those Areas of Operation and the associated Tasks satisfactorily performed. Though not required, the evaluator has discretion to reevaluate any Task, including those previously passed, during the retest.

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.

### **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.

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**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
- Flight Plan Form and Flight Logs (printed or electronic)
- Chart Supplements U.S., Airport Diagrams and appropriate Publications
- Current AIM

**Personal Records**

- Identification—Photo/Signature ID
- Pilot Certificate
- Current Medical Certificate
- Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature
- Original 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 examiner shall 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.

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**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
<b>I</b>	F,G	F,G	F,G	F,G	F,G	F,G	F,G	F,G
<b>II</b>	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
<b>III</b>	None	None	None	B	None	B	B	B
<b>IV</b>	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
<b>V</b>	None	None	None	A,B	A	A,B	A,B	A,B
<b>VI</b>	None	None	None	None	None	A,B,C,D	A,B,C,D	None
<b>VII</b>	None	None	None	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
<b>VIII</b>	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
<b>IX</b>	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
<b>X</b>	None	None	None	None	None	None	None	None
<b>XI</b>	None	None	None	None	None	A	A	A
<b>XII</b>	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
<b>I</b>	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
<b>II</b>	E	E	E	A,B,E,F	A,B,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F
<b>III</b>	None	None	None	B	None	B	B	B
<b>IV</b>	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
<b>V</b>	None	None	None	A,B	A	A,B	A,B	A,B
<b>VI</b>	None	None	None	None	None	A, B,C,D	A, B,C,D	None
<b>VII</b>	None	None	None	None	A, B,C,D	A, B,C,D	A, B,C,D	A, B,C,D
<b>VIII</b>	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
<b>IX</b>	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
<b>X</b>	None	None	None	None	None	None	None	None
<b>XI</b>	None	None	None	None	None	A	A	A
<b>XII</b>	B	B	None	B	B	B	B	B

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**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,J	F,G,J	F,G	F,G,J	F,G,J	F,G,J	F,G,J	F,G,J
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

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**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
<b>I</b>	F,G,I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
<b>II</b>	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
<b>III</b>	None	None	None	B	None	B	B	B
<b>IV</b>	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
<b>V</b>	None	A	A	A,B	A	A,B	A,B	A,B
<b>VI</b>	None	None	None	None	None	A,B,C,D	A,B,C,D	None
<b>VII</b>	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
<b>VIII</b>	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
<b>IX</b>	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
<b>X</b>	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
<b>XI</b>	None	None	None	None	None	A	A	A
<b>XII</b>	B	B	None	B	B	B	B	B

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**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.

<b>X. Multiengine Operations</b>
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 removal of the “Limited to Center Thrust” limitation at the private pilot certificate level requires an applicant to satisfactorily perform the following Areas of Operation and Tasks from the Private Pilot – Airplane ACS in a multiengine airplane that has a manufacturer’s published  $V_{MC}$  speed. An applicant that holds an instrument-airplane rating and has not demonstrated instrument proficiency in a multiengine airplane with a published  $V_{MC}$  shall complete the additional Tasks listed under the **Removal of the “Airplane Multiengine VFR Only” Limitation** section of this Appendix.

<b>I. Preflight Preparation</b>
Task J: Principles of Flight – Engine Inoperative (AMEL, AMES)
<b>IX. Emergency Operations</b>
Task E: Engine Failure During Takeoff Before $V_{MC}$ (Simulated) (AMEL and AMES)
Task F: Engine Failure After Lift-Off (Simulated) (AMEL, AMES)
Task G: Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)
<b>X. Multiengine Operations</b>
Task A: Maneuvering with One Engine Inoperative (AMEL, AMES)
Task B: $V_{MC}$ Demonstration (AMEL and AMES)

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## **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 CRM principles described as 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."

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### ***Aeronautical Decision Making, Risk Management, CRM and SRM***

Throughout the practical test, the evaluator must assess the applicant's ability to use sound aeronautical decision making 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.

For multiengine practical tests conducted in the airplane, the evaluator will set zero thrust after the applicant has simulated feathering the propeller following a simulated engine failure. The applicant must demonstrate feathering one propeller in flight unless the manufacturer prohibits this action. 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.

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#### ***VIII. Emergency Operations - Powerplant Failure—Multiengine Airplane***

In a multiengine airplane or FSTD equipped with propellers (including turboprop), the applicant must demonstrate feathering one propeller and engine shutdown unless:

- The practical test is for a type rating, and
- The airplane used for the practical test was not certificated with inflight unfeathering capability.

In this situation, the applicant may perform a simulated powerplant failure. In all other cases, the applicant must demonstrate the ability to safely feather and unfeather the propeller while airborne.

For safety reasons, when the practical test is conducted in the airplane, the applicant shall perform Tasks that require feathering or shutdown only under conditions and at a position and altitude (i.e., no lower than 3,000 feet AGL) 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. 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.

Practical tests conducted in a FSTD can only be accomplished as part of an approved curriculum or training program. Any limitations on powerplant failure will be noted in that program.

Engine failure (simulated) shall be accomplished before reaching 50 percent of the calculated  $V_{MC}$ .

### ***Single-Engine Considerations***

#### ***VIII. Emergency Operations - Powerplant Failure—Single-Engine Airplane***

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 Aircraft 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).

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

### ***Aircraft Requirements & Limitations***

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 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 already demonstrated competence in a multiengine airplane with a published  $V_{MC}$ .

Any equipment inoperative in an aircraft with a minimum equipment list (MEL) shall be placarded in accordance with the approved MEL procedures. The applicant shall describe the procedures accomplished, the resulting operational restrictions, and the documentation for the inoperative item(s).

### ***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.

This section requires the aircraft must be:

- Of U.S., foreign, or military registry of the same category, class and type, if applicable, for the certificate and/or rating for which the applicant is applying.
- The aircraft must have fully functional dual controls, except as provided for in 14 CFR section 61.45(c) and (e); and
- Capable of performing all Areas of Operation appropriate to the rating sought and have no operating limitations, which prohibit its use in any of the Area of Operation, required for the practical test.

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

[Reserved]

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

### Use of FSTDs

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 FSTDs 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 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 qualification performance standard (QPS) for a specific FTD qualification level (part 1).*

The FAA National Simulator Program (NSP) qualifies Level A-D FFSs and Level 4 – 7<sup>1</sup> FTDs. In addition, each operational rule part identifies additional requirements for the approval and use of FSTDs in a training program<sup>2</sup>. 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. [\[back\]](#)

### Use of ATDs

14 CFR 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 provide approval for aviation training devices (ATD).

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<sup>1</sup>The FSTD qualification standards in effect prior to part 60 defined a Level 7 FTD for airplanes (see Advisory Circular 120-45A, 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 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.

<sup>2</sup> 14 CFR part 121, section 121.407; part 135, section 135.335; part 141, section 141.41; and part 142, section 142.59.

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 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). The LOA will be 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.

*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 the AC 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 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, commercial pilot certificate, airline transport pilot (ATP) 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.*

**ATDs cannot be used for practical tests, aircraft type specific training, or for an aircraft type rating; therefore the use of an ATD for the private pilot airplane practical test is not permitted. [\[back\]](#)**

### ***Credit for Time in an FSTD***

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.<sup>3</sup> 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 part 142, section 61.109(k)(1).<sup>4</sup> For those pilots that received training through a part 142 program, section 61.109(k)(2).

### ***Credit for Time in an ATD***

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.<sup>5</sup> 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 the time, the 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 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, [see Appendix 4](#).

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<sup>3</sup> The minimum aeronautical experience requirements may be further reduced as permitted in part 61, section 61.109(k)(3).

<sup>4</sup> As part of program approval, part 141 training providers must also adhere to the requirements for permitted time in an FFS or FTD per Appendix B to part 141.

<sup>5</sup> The minimum aeronautical experience requirements may be further reduced as permitted in part 61, section 61.109(k)(3).

### **Use of an FSTD on a Practical Test**

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. 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 part 141 or part 142 of this chapter; or under 14 CFT part 121 or 14 CFR 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 part 141 pilot school graduates, or appropriately authorized part 142 Training Center Evaluators (TCE).

In addition, 14 CFR 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 a 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 a 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 shall have the same performance standards applied equally for determination of overall satisfactory performance.

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## 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 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 and 65
AC 61-67	Stall and Spin Awareness Training
AC 91-73	Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations
AIM	Aeronautical Information Manual
Chart Supplements U.S.	Chart Supplements U.S. (previously Airport/Facility Directory or A/FD)
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-8740-19	Flying Light Twins Safely
POH/AFM	Pilot's Operating Handbook/FAA-Approved Airplane Flight Manual
Other	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](http://www.faa.gov).

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## 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
ADF	Automatic Direction Finder
ADM	Aeronautical Decision-Making
AFS	Flight Standards Service
AELP	Aviation English Language Proficiency
AFM	Airplane Flight Manual
AFS	Flight Standards Service
AGL	Above Ground Level
AIM	Aeronautical Information Manual
AKTR	Airman Knowledge Test Report
ALD	Available Landing Distance
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
AOA	Angle of Attack
AOO	Area of Operation
ASEL	Airplane Single Engine Land
ASES	Airplane Single Engine Sea
ASI	Aviation Safety Inspector
ATC	Air Traffic Control
ATD	Aviation Training Device
ATP	Airline Transport Pilot
BATD	Basic Aviation Training Device
CDI	Course Deviation Indicator
CFIT	Controlled Flight Into Terrain
CFR	Code of Federal Regulations
CG	Center of Gravity
CP	Completion Phase
CRM	Crew Resource Management
CTP	Certification Training Program
DA	Decision Altitude
DH	Decision Height
DME	Distance Measuring Equipment
DP	Departure Procedures



Abb./Acronym	Definition
DPE	Designated Pilot Examiner
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FADEC	Full Authority Digital Engine Control
FFS	Full Flight Simulator
FMS	Flight Management System
FSB	Flight Standardization Board
FSDO	Flight Standards District Office
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
GBAS	Ground Based Augmentation System
GBAS GLS	Ground Based Augmentation Landing System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HAT	Height Above Threshold (Touchdown)
HSI	Horizontal Situation Indicator
IA	Inspection Authorization
IAP	Instrument Approach Procedure
IFO	International Field Office
IFR	Instrument Flight Rules
IFU	International Field Unit
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IPC	Instrument Rating – Airplane <i>Canadian Conversion</i>
IPC	Instrument Proficiency Check
IR	Instrument Rating
IRA	Instrument Rating – Airplane
KOEL	Kinds of Operation Equipment List
LAHSO	Land and Hold Short Operations
LDA	Localizer-Type Directional Aid
LOA	Letter of Authorization
LOC	ILS Localizer
LPV	Localizer Performance with Vertical Guidance
MAP	Missed Approach Point
MDA	Minimum Descent Altitude
MEL	Minimum Equipment List
MFD	Multi-functional Displays
NAS	National Airspace System
NOD	Notice of Disapproval
NOTAMs	Notices to Airmen
NSP	National Simulator Program

Abb./Acronym	Definition
NTSB	National Transportation Safety Board
PA	Private Airplane
PAR	Private Pilot Airplane
PAT	Private Pilot Airplane/Recreational Pilot – Transition
PCP	Private Pilot Canadian Conversion
PFD	Primary Flight Display
PIC	Pilot-in-Command
POA	Plan of Action
POH	Pilot's Operating Handbook
PTS	Practical Test Standards
QPS	Qualification Performance Standard
RAIM	Receiver Autonomous Integrity Monitoring
RMP	Risk Management Process
RNAV	Area Navigation
RNP	Required Navigation Performance
SAE	Specialty Aircraft Examiner
SFRA	Special Flight Rules Area
SIAP	Standard Instrument Approach Procedure
SMS	Safety Management System
SOP	Standard Operating Procedures
SRM	Single-Pilot Resource Management
SRM	Safety Risk Management
STAR	Standard Terminal Arrival
SUA	Special Use Airspace
TAEA	Track Advisory Environmental Assessment
TAF	Terminal Forecast
TAS	True Airspeed
TCH	Threshold Crossing Height
TEM	Threat and Error Management
TFR	Temporary Flight Restrictions
UTC	Coordinated Universal Time
V <sub>A</sub>	Maneuvering speed
VDP	Visual Descent Point
V <sub>FE</sub>	Maximum flap extended speed
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
V <sub>MC</sub>	Minimum Control Speed with the Critical Engine Inoperative
V <sub>NE</sub>	Never exceed speed
VOR	Very High Frequency Omnidirectional Range
V <sub>s</sub>	Stall Speed
V <sub>x</sub>	Best Angle of Climb Speed

Abb./Acronym	Definition
$V_Y$	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

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